



Kids' Health Care Access: Diagnosis and Prescription for Improvement

Full Report

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Executive Summary

Introduction

In 2006, Caring for Colorado Foundation, The Colorado Health Foundation, The Colorado Trust, and Rose Community Foundation joined together to fund a study of children's access to health care in Metro Denver. Although we chose to focus on Metro Denver because it is home to more than half of the state's uninsured children, the findings and their policy implications are often applicable statewide.

The four foundations commissioned Health Policy Solutions to conduct the study. The study examined the current state of health care access, coverage, provider capacity, and quality of care for all children in the Metro Denver area in order to help us better understand the underlying issues and opportunities for improvement.

Kids' Health Care Access: Diagnosis and Prescription for Improvement provides an assessment of children's access to and coverage for quality health care in the Metro Denver area and, based on this "diagnosis," offers recommendations that consider the state and local context. This Executive Summary summarizes key findings, recommendations, and action steps, and the full report details implementation strategies and issues for further consideration. The full report can be found on the websites of the four foundations.

Problem Diagnosis

Child Health Status – A Call to Action

Colorado Children are not as healthy as they could be, especially uninsured and some publicly insured children. Compared to the U.S. average, children in Denver and across Colorado are more likely to suffer from certain serious but preventable outcomes such as low birth weight, vaccine-preventable disease, and suicide. Inadequate access to care is partially to blame for these poor outcomes and this problem is likely to worsen in Metro Denver. This is because of the growth in populations that historically have faced barriers in access to care – such as low-income, uninsured, and Latino children.

While access to health care services appears to be good for privately insured children, it is far more variable for publicly insured children. Many publicly insured children have low levels of preventive care and high rates of avoidable hospitalizations. As a result of state budget constraints and other factors, a majority of the 240,000 Medicaid children statewide are "unassigned" to a health plan or to a primary care provider. Because Medicaid does not ensure a regular source of care for unassigned enrollees, many low-income children are not being immunized. Furthermore, Medicaid children with chronic conditions such as asthma and diabetes are not receiving adequate care and are increasingly seen in the hospital or emergency department for avoidable exacerbations. By comparison, publicly insured children who are in managed care plans (i.e., have an assigned primary health care provider) receive more recommended preventive services in appropriate settings than do children who are enrolled in the state's unassigned option, suggesting that better outcomes are possible.

The major factors contributing to avoidable poor health care access for children include financial barriers (e.g., lack of insurance coverage), lack of community focus on quality improvement, too few providers willing to see publicly insured or uninsured children (e.g., inadequate provider capacity for low-income children), and lack of parental knowledge as to when and how best to use the health care system. This suggests that to ensure unimpeded access to care for all children in Metro Denver, the following areas need to be tackled: coverage, quality, provider capacity, and education and outreach. Our diagnosis of the problem also suggests that, in many instances, these issues need to be addressed at the state level.

Prescription for Improvement

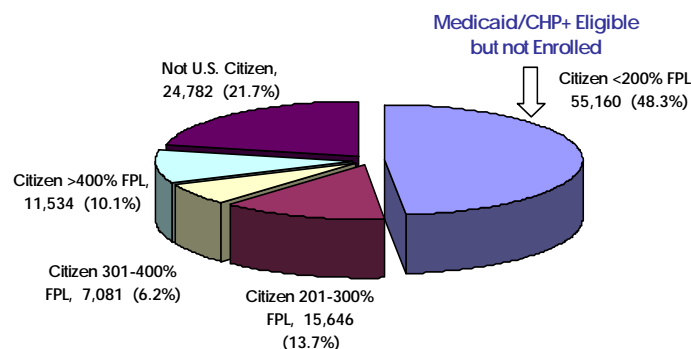
Key Findings and Recommendations

The following recommendations respond to the access, coverage, quality, provider capacity, and parent education deficits identified in this study. In many cases, the recommendations build on state and local opportunities detailed in the full report.

COVERAGE

Main Finding: Of the children living in Metro Denver, 114,000 (16%) are uninsured. Of these, nearly half (55,160) are eligible for, but not enrolled in Medicaid or Child Health Plan *Plus* (CHP+). (See Figure 1.)

Figure 1: Uninsured Children in Metro Denver by Federal Poverty Level and Citizenship



Data Sources: Current Population Survey (2004-2006)

Other Key Findings:

- The typical uninsured child living in Metro Denver is a U.S. citizen, Latino, and eligible for publicly-sponsored health insurance.
- Both Metro Denver and Colorado have higher rates of uninsured children than the national average —16% and 14%, respectively, versus 12% nationally. Low eligibility ceilings, enrollment barriers, and gaps in eligibility for public programs all contribute to Colorado's higher-than-average child uninsured rates.

- Most of the 114,000 Metro Denver children without insurance come from families who are unable to afford the full cost of coverage.
- A program or policy that resulted in coverage for all children with family incomes under 300% of the federal poverty level (\$51,510 per year for a family of three) would reduce Metro Denver child uninsured rates from nearly 16% to under 3%.
- While half of uninsured children are citizens and income-eligible for public programs, approximately half of their parents are not citizens, representing a significant barrier to enrolling all children.
- Barriers faced by non-citizen parents to enrolling their eligible children include language difficulties, lack of familiarity with public programs, confusing enrollment processes and, for undocumented parents, fear of detection.

Recommendations:

The following recommendations seek to enroll all currently eligible children into existing programs and eliminate all gaps in coverage for children under 300% of the federal poverty level. Other states have successfully addressed both objectives simultaneously. Research shows that any coverage expansion – including coverage expansions to other populations, such as parents – results in increased enrollment in existing programs, as well as the new program.

1. **Enroll all currently eligible children into existing programs.** The state and counties should simplify the policies and processes to enroll all eligible children in Medicaid/CHP+.

Action Steps:

- Adopt proven eligibility and renewal processes that maximize continuity of coverage such as self-declaration of income, continuous enrollment, and passive re-enrollment.
 - Simplify the state application processes for public insurance programs.
 - Expand the number of community-based enrollment sites.
 - Train and collaborate with community-based organizations on the design and implementation of new application and enrollment strategies, including two-way communication and problem-solving capacity.
 - Collect data and evaluate eligibility and enrollment processes to identify successful strategies, hurdles, and gaps.
 - Use social marketing techniques to promote Medicaid and CHP+ to parents.
2. **Eliminate all gaps in coverage for children under 300% of the federal poverty level.** The state should collaborate with stakeholders to create a new coverage program for uninsured children whose families cannot afford private insurance (e.g., under 300% of the federal poverty level) and who are ineligible for Medicaid and CHP+ due to income or citizenship.

Action Steps:

- Determine whether the coverage program should focus on children or families.
- Build community consensus on program design (e.g., eligibility, benefits, provider rates, subsidies for individual private, employer-based, or public coverage).
- Identify financing strategies (i.e., local, state, federal, individual, employer, foundation).

- Conduct an updated analysis of health insurance affordability to determine the upper limit on eligibility for the coverage program; national research suggests that this level is around 300% of the federal poverty level.
- Implement program.

QUALITY

Major Finding: Access to quality health care services varies widely among uninsured and publicly-insured children in Colorado.

Other Key Findings:

- Several Colorado health plans have demonstrated their ability to provide high quality, accessible care to publicly insured children.
- Community support exists for creating incentives for successful, Colorado-based, nonprofit health plans to enroll more Medicaid children.
- Medicaid programs in other states have reversed negative health trends by implementing continuous quality improvement programs and collaborating with providers and other community partners.
- Colorado's Medicaid program is well-poised to jump-start a collaborative effort to improve child health outcomes. The agency has already provided leadership by formally committing to continuous quality improvement principles and by collecting and publicly reporting multiple measures of child access and quality.

Recommendations:

1. **Increase the use of high-performing managed care delivery systems.** State programs that provide health care coverage for children should use managed care delivery systems that have demonstrated good performance on health indicators for low-income children.

Action Steps:

- Implement best practices in managed care program development and contracting.
- Use managed care delivery systems that have demonstrated good performance on access and quality indicators for low-income children.
- Make managed care enrollment optional for children with special health care needs (i.e., those who qualify for Medicaid via Supplemental Security Income, foster care, or Home and Community Based Services waivers) and ensure viable alternatives for these vulnerable populations.
- Pay actuarially sound rates to ensure participation of plans and providers and incorporate pay-for-performance incentives.
- Ensure adequate financing for safety net providers.
- Implement efficient (e.g., automated) means for enrolling children into managed care that consider parental preferences and any existing relationships with providers.
- Consult with plans and providers to establish care performance standards at the system and provider levels.
- Require robust health plan performance measures, including measures for special populations such as child developmental screening rates, asthma care for children, and specialist access for children with special health care needs.

2. **Implement a continuous quality improvement program at the Colorado Department of Health Care Policy and Financing (HCPF).** The state should encourage collaboration among state agencies, providers, and consumers to fully implement a continuous quality improvement program for publicly insured children.

Action Steps:

- Reorganize the existing HCPF programs consistent with continuous quality improvement program principles.
 - Engage state agencies, providers, and consumers in a collaborative process to identify key measures and to develop social and clinical intervention strategies.
 - Identify strategies for collecting data on small populations, such as children with special health care needs.
 - Collect and monitor data on enrollment, access, provider capacity, and quality trends.
 - Develop programs and policies that respond to negative trends and evaluate results.
 - Seek additional staffing and resources, as necessary.
 - Contract with external evaluators to enhance analytical capacity and ensure community credibility.
3. **Create a stakeholder group focused on quality issues specific to health care for children.** Health care purchasers (e.g., employers, state government) and providers should collect data, share best practices, and engage in community planning to improve identified access and quality deficits for children.

Action Steps:

- Establish a stakeholder group focused on quality issues specific to health care for children.
- Identify shared interests or community priorities (e.g., developmental screening, case management, asthma) and develop coordinated responses.
- Collect purchaser and provider data on all children, including commercially insured children, to better understand local trends regarding access and quality.
- Share best practice information on local primary care redesign efforts and encourage replication.
- Implement Electronic Health Records in primary care practice settings to improve clinical care and to enhance the data available for community planning.
- Collaborate with HCPF to identify measures and data collection strategies to assist with local planning and the identification of policy barriers to improving health outcomes for children.
- Collaborate with the Colorado Business Group on Health to increase the number of pediatric quality measures available for privately insured children.
- Institute data practices to encourage collaboration, such as allowing providers to share information anonymously.

PROVIDER CAPACITY

Major Finding: Public program coverage expansions threaten to worsen access and quality unless steps are taken to improve provider willingness to participate in public programs.

Other Key Findings:

- Private physician participation in public programs is a chronic problem that worsened during the recession due to rate freezes and cuts, and a state policy of reducing reliance on managed care.
- Safety net providers can and do augment the provider capacity of public programs; however, Colorado's high uninsured rates for adults and children, coupled with the growing Medicaid unassigned population, have taxed the Colorado safety net.

Recommendation:

1. **Require the state to monitor and improve providers' ability to serve publicly insured and uninsured children.** State-level intervention is required to address the financing and reimbursement issues that impede improvements in provider capacity.

Action Steps:

- Obtain input from public and private providers on issues that impede improvements in provider capacity for uninsured and publicly insured children.
- Develop and implement a multi-year strategic plan for building provider capacity based on the size, geographic distribution, and needs of low-income populations.
- Develop a means to collect and analyze routine data to quantify capacity issues.
- Resolve financing barriers between public and private providers.
- Ensure adequate financing to safety net providers to care for the uninsured.

EDUCATION AND OUTREACH

Major Finding: Many parents are not aware of preventive care recommendations and lack "health literacy" skills necessary to optimize health services.

Recommendation:

1. **Design and implement an integrated strategy of client education, care coordination, and cultural competency training.** Providers and community-based organizations should implement evidence-based and culturally appropriate programs that aim to improve parent knowledge and navigation skills.

Action Steps:

- Implement parent education campaigns that emphasize the importance of prevention.
- Implement targeted parent education programs to reach high-need populations, including recent immigrants and parents of children with chronic conditions.
- Implement cultural competency and language training programs for providers and staff.
- Create a single point of entry or otherwise coordinate existing case management and care coordination programs to help parents navigate the health delivery system.

Conclusion

Improving access to quality care will require a four-pronged investment approach that expands coverage to uninsured children, improves the quality of care delivered through public programs, increases provider capacity to serve low-income children, and provides health education and outreach to parents. Making this a public priority will yield many dividends, including better child health and greater value for Colorado taxpayers.

Background

After weathering post-9/11 recessions and state budget crises, many states are betting that the window of opportunity for comprehensive health reform has opened. In so doing, Colorado joins at least seven other states to consider universal coverage approaches. For example, in 2005, Illinois became the first state in the nation to pass legislation that aims at universal coverage for children, known simply as All Kids. Trumping this move, the Massachusetts state legislature passed in 2006 a complex package of public and private reforms to cover residents of all ages. Since then, governors, gubernatorial candidates, and state legislatures in states as diverse as California, Louisiana, Minnesota, Mississippi, Pennsylvania, Tennessee, and Wisconsin are currently considering or have recently passed similar legislation.^{1,2,3,4,5,6,7,8}

In addition to expanding coverage, many states are simultaneously implementing strategies, such as medical home initiatives, health information technology, and performance-based incentives, that intend to improve the accessibility, quality, and efficiency of services. State reform approaches and financing strategies vary substantially, and their costs and prospects for success remain largely unknown. However, collectively, this level of momentum signals a significant shift in thinking from the prior period of hedged bets in which states cut coverage or benefits or, at most, made modest incremental reforms.⁹

Purpose

Against this national backdrop, four Colorado health foundations – Caring for Colorado Foundation, The Colorado Health Foundation, The Colorado Trust and Rose Community Foundation – came together with a shared interest in promoting access to quality child health care services. To better understand the underlying issues and opportunities for improvement, they commissioned a study from Health Policy Solutions to assess the current state of health care access, coverage, capacity, and quality of care for *all* children in the Denver metropolitan area. As the report title implies – Kids' Health Access in Metro Denver: Diagnosis and Prescription for Improvement – the study provides both an assessment of access and quality deficits as well as a package of recommendations for improvement that consider the local context.

Data Sources

After conducting a literature review, we used qualitative and quantitative methods to assess child health care access and quality in Denver metro. For the latter, we analyzed multiple data sources including national and state surveys and health plan and provider quality data. No statistical testing was conducted. In addition, we interviewed 30 Colorado key informants (listed in Appendix A) that represent purchasers, health plans, hospitals, primary care providers, employers, foundations, advocates, and researchers. We also interviewed five out-of-state foundation project officers regarding relevant access and quality initiatives. The findings of these case studies are highlighted in text boxes interspersed throughout the paper.

The narrative cuts across these various data sources to identify key issues and themes. Whenever possible, Denver metro data are presented. However, when local data is lacking, state data is substituted. Because quantitative data is not consistently available across all domains of interest, the relative emphasis on key informants' perspectives varies throughout the paper. However,

source data is always referenced in the text. In addition, more detailed information on data sources and their limitations are found in the footnotes and appendices.

Metro Denver Children: Health Status and Demographics

Any good diagnostic work-up begins with a patient history. In our case, “the patient” is all children residing in metro Denver. For the purposes of this report, metro Denver consists of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties. This section presents basic “patient” information about demographics, health status, and coverage.

Demographic changes have implications for future health status trends and serve to forecast the future needs of the health delivery system. Denver metro’s child population has become poorer, more suburban, and increasingly diverse (racially and ethnically). While insurance coverage rates have remained relatively stable, the underlying composition of coverage has changed with more children covered through public programs. As will be described in this and subsequent sections, the “average” uninsured child in Denver metro is Hispanic/Latino, native to the U.S., and already eligible for public programs.

Currently, a majority of Denver metro parents report that their children enjoy good to excellent health. However, Colorado historically has struggled to meet benchmarks on many health status indicators that are sensitive to health care access and public program performance, such as: low birth weights, two-year-old immunizations, and adolescent depression and suicide. Furthermore, poor outcomes on access-sensitive indicators may burgeon in the future as populations that historically have faced access barriers – such as low-income, uninsured, and Hispanic/Latino children – continue to grow and move to suburban areas with limited capacity to serve them.

Child poverty rates increase post 9/11

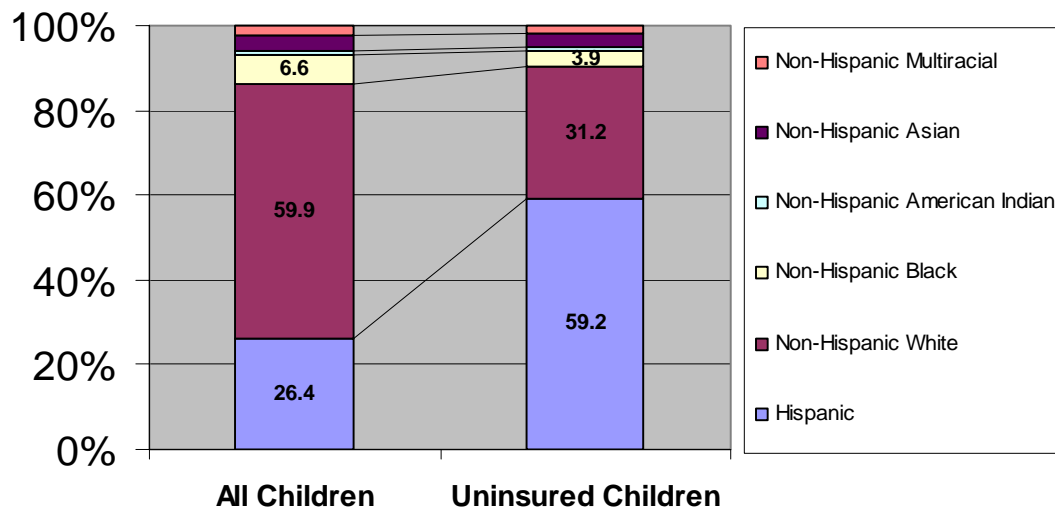
Colorado is a relatively educated and wealthy state with a per capita income considerably above the national mean.¹⁰ However, as nationally, Denver metro child poverty rates have steadily increased in the years post-9/11.^{11,12} Poverty is a risk factor for many diseases and adverse health outcomes. In addition, growing numbers of poor and near poor children in Colorado have driven large increases in Medicaid enrollment and stressed safety net providers.

Ethnic diversity on the rise

Colorado’s demographics are rapidly changing due to immigration patterns, birth rate trends, and the overall aging of the population. For example, current projections hold that the Colorado Hispanic/Latino population will double by 2030, driven by growth in the child population. In Denver metro, Hispanic/Latino children currently comprise more than a quarter of the region’s child population and nearly two-thirds of the region’s uninsured children. (See Figure 1.)

Current ethnic and racial health disparities in access, coverage, and health status will affect more and more children as these populations grow, unless action is taken now. Because many Colorado Hispanic/Latino residents are recent immigrants from countries with very different health care systems and because an estimated one-third have difficulty speaking English, the growing ethnic diversity within Denver metro has major implications for the current and future cultural competency needs of the health care delivery system.^{13,14}

Figure 1: Denver Metro Children Population Proportions:
Total Children vs. Uninsured Children (Calendar Years 03-05)



Data Source: CPS 2004-2006¹⁵

Increasingly suburban

In addition to becoming poorer and more ethnically diverse, Denver metro children are also becoming increasingly more suburban. A Piton Foundation mapping analysis concluded that children concentrate in suburban areas that border Denver County and along the C-470 Beltway.¹⁶ In response to an increased demand for services, especially by low-income children, suburban safety net providers report capacity problems.

Denver Metro child uninsured rates somewhat higher than state and national rates

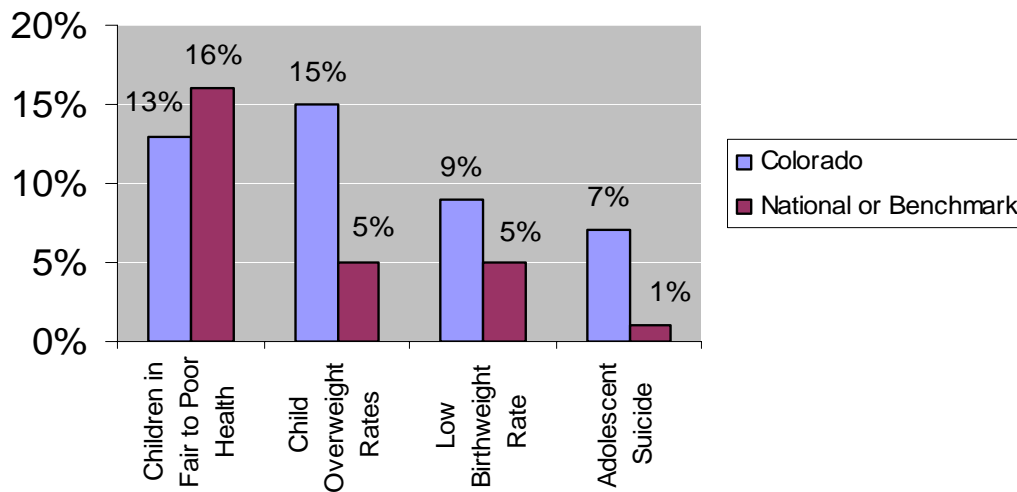
In 2004, approximately 700,000 children under the age of 19 lived in the seven-county Denver metro area, representing over half (57.5 percent) of the state's child population.¹⁷ Approximately 15.9 percent of these children were uninsured, which is almost two percentage points higher than the statewide rate of 14.0 percent.^{18,19} Applying this uninsured rate to 2006 population data yields an estimate of 114,000 uninsured children in Denver metro. As we will reiterate throughout, coverage is closely linked with access and child health outcomes.

Colorado performs least well on child health indicators sensitive to access and public program use

A recent health report card for Colorado awarded the state an average grade of "C" on child health outcomes. Although Colorado received better grades for certain outcomes, overall it performed poorly on measures sensitive to access and public system performance. For example, Medicaid pays for one-third of all deliveries, covers approximately 20 percent of children, and is a major purchaser of mental health services. However, the report card concludes that rates of inadequate prenatal care are high, providing partial explanation for the state's high rate of low birth weight births. A history of low immunization rates are thought to underlie child pertussis rates that are among the highest in the nation.²⁰ One in four adolescents report symptoms of depression, but a statewide assessment concluded that many barriers to mental health services exist.²¹ Furthermore, Colorado has an adolescent suicide rate that is seven times the Healthy People 2010 target.^{22,23}

Figure 2 illustrates Colorado's performance on several of these indicators as compared to national and other benchmarks. Projected demographic trends threaten to exacerbate existing access barriers, potentially pushing indicators further from benchmarks.

Figure 2: Colorado Child Health Status Indicators vs. National/Benchmark Health Status



Sources Colorado Health Report Card (2006).²⁴, Colorado Health Information Database (CoHID)²⁵

Estimates of children with special health care needs vary

A child's risk of having a special health care need increases with poverty. The estimate of children with special health care needs (CSHCN) in Colorado is highly sensitive to the definition of the term, ranging from less than 10 percent to more than one-quarter. (See Appendix B.)^{26,27} According to the most widely accepted Maternal and Child Health Bureau (MCHB) definition, 12 percent of children in Colorado have special health care needs.^{28,29} MCHB defines CSHCN as:

Children with special health care needs are those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition requiring health and related services of a type or amount beyond those required by children generally.

By definition then, children with special health care needs use the health care system more and differently than children without special needs. When available, the present assessment includes data on access and quality for children with special health care needs, however, relevant data is often lacking. This is an important limitation to our analysis. We will revisit this point in the recommendations section.

Access to Health Care for Denver Metro Children

To assess the adequacy of health care access for Denver metro children, we considered the following questions. Again, our data sources included state and local data (where available), expert opinion, and published studies.

- How well are children able to access health care services?
- What are the barriers to access?
- What are the major influences on demand for services?
- What are the coverage trends and options for expanding coverage?
- Is provider capacity adequate?
- What are the major financing and reimbursement considerations that affect access?

Our findings are organized accordingly.

How well are children able to access health care services?

This section reviews what secondary data sources can tell us about how well Denver metro children are able to access health services. Specifically, we examine access to a medical home, immunization rates, hospitalization rates, and parent perceptions of access. Because extensive research documents that coverage is a major determinant of access, these indicators are compared by source of coverage: commercial, public, or uninsured.^{30,31,32} Key informant perspectives help to interpret the patterns that emerge and are included here.

The access - coverage nexus

Child health care access depends on whether a child has public, private, or no coverage. As measured by their medical home access as well as their rates of immunization and avoidable hospitalizations, commercially-insured children appear better able to access both primary care and specialty care services as compared to uninsured and publicly-insured children. However, this assessment is constrained by very limited publicly-available data. While commercial HMO's report some pediatric indicators to the Colorado Business Group on Health, other types of commercial products such as preferred provider organizations (PPOs) and health savings accounts (HSAs) do not make any performance data available to the public. The absence of this data renders emerging concerns such as "underinsurance" almost entirely unquantifiable.

For publicly insured children, accessibility of services varies dramatically according to whether children are enrolled in a health plan and, if enrolled, to which. In both CHP+ and Medicaid, more traditional managed care plans perform consistently better than the state-administered, fee-for-service networks. A couple of health plans consistently report access indicators that rival commercial results. However, state policy does not consistently reward high performance. Rather, the vast majority of the 240,000 Medicaid children statewide are "unassigned" to a managed care plan or to a primary care provider. (See text box on page 18.) Access indicators for children in the unassigned Medicaid program are much lower than for children enrolled under the various managed care options. In 2004, the best Medicaid managed care plan performed at a level similar to commercial plans and between 26 and 84 percentage points higher than the unassigned group across all six measures of access. (See Appendix E.)

The next few sections review the data behind these summary statements about accessibility of services in Colorado and Denver-metro.

Access to a “medical home” improves with coverage

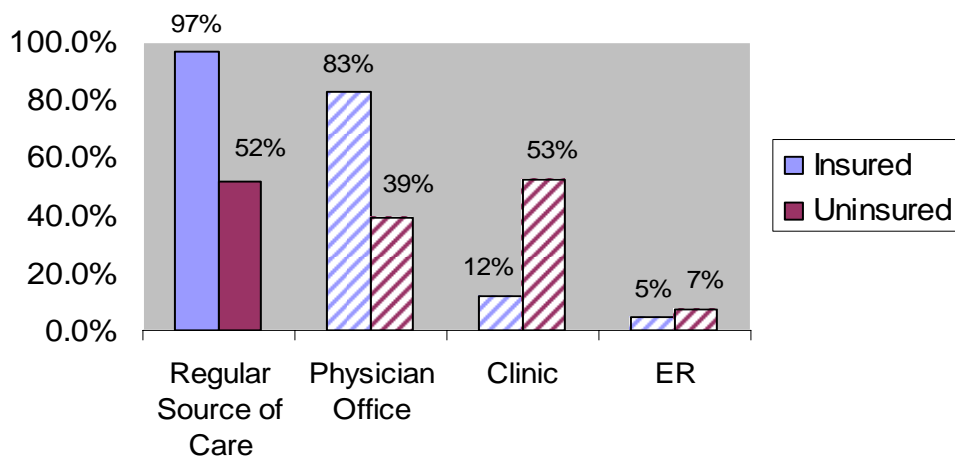
Children with a regular source of care or a “medical home” are more likely to access recommended preventive services and have fewer adverse health outcomes. The American Academy of Pediatrics (AAP) defines the “medical home” concept for children as:

... accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective. It should be delivered or directed by well-trained physicians who provide primary care and help to manage and facilitate essentially all aspects of pediatric care. The physician should be known to the child and family and should be able to develop a partnership of mutual responsibility and trust with them.³³

This definition distinguishes care that is provided in a medical home from more sporadic care that is provided through emergency departments and other urgent-care facilities. It also articulates standards of comprehensiveness and quality that differ from merely having a “regular source of care.” Thus, estimates of children who have access to a medical home vary according to how the question is asked. For example, parent surveys indicate that over 80 percent of children in the Denver metro area have a “personal doctor or health provider.”³⁴ However, just under half (45.8 percent) of Colorado children currently have a personal doctor or nurse and “receive care that is accessible, comprehensive, culturally sensitive, and coordinated.”³⁵

As Figure 3 reveals, access to a medical home varies substantially by insurance status. Denver metro children with insurance are much more likely than uninsured children to have a regular source of care. Insured children with a regular source of care are also more likely to use a physician’s office rather than a clinic or the emergency department, as compared to uninsured children with a regular source of care.

Figure 3: Regular Source of Care and Provider of the Regular Source of Care for Denver Metro Children, 2001



Data Source: Colorado Household Survey, 2001³⁶

Data Note: The striped bars refer to Denver metro children who have a regular source of care (insured and uninsured).

Lack of a medical home contributes to “preventable” hospitalizations

Access to a medical home is important because children with a medical home are more likely to receive preventive services and thus experience better health outcomes. For example, they are more likely to be immunized and less likely to be hospitalized for vaccine-preventable diseases and chronic conditions such as asthma and diabetes. Indeed, researchers view hospitalizations for conditions that can be prevented with good primary care as a leading indicator to detect problems in the primary care delivery system.

Colorado childhood immunizations rates lag the nation

Hospitalization for vaccine preventable diseases represents one such story line. One of the reasons that children are healthier today is due to the vastly reduced threat of communicable diseases during childhood. For example, the Centers for Disease Control and Prevention (CDC) has identified universally recommended childhood vaccinations as one of the 10 great public health achievements of the 20th century – to which dramatically reduced childhood morbidity and mortality in the U.S are directly attributable.³⁷ Sustaining this success requires that the primary care delivery system provide reliable access to a growing list of childhood immunizations. Conversely, primary care access barriers will reverse these gains. Colorado has historically struggled to immunize enough of the child population to keep vaccine-preventable diseases at bay. Experts link the state's poor immunization history to its high rates of pertussis, including outbreaks over the last decade that have resulted in at least seven child deaths.³⁸ During 2001-2003, Colorado children who were uninsured or publicly insured had more than twice the rate of hospitalization for vaccine-preventable diseases than commercially-insured children.³⁹ This fact is consistent with the finding in Figure 3 that uninsured children are less likely to have a regular source of care.

Hospitalization patterns for children with special health care needs (CSHCN) tell a similar story. While some level of hospitalization is unavoidable for children with severe disabilities or chronic conditions, elevated hospitalization rates again signal inadequate access to -- or performance of -- the medical home. An extensive literature documents that proper primary care management of common childhood conditions such as asthma and diabetes can prevent exacerbations that affect quality of life and often result in emergency department use and hospitalizations.^{40,41,42} An analysis of Colorado hospitalizations revealed higher hospitalization rates for children with public or no insurance for several chronic conditions, including asthma, psychiatric conditions, and diabetic ketoacidosis. No similar “insurance-associated” patterns of hospitalization were found for conditions that are “unlikely to be altered by primary care,” such as appendectomy, childhood cancer, trauma, and orthopedic disorders.⁴³ The authors conclude, and key informants concur, that avoidable hospitalizations among uninsured and publicly-insured children reflect inadequate provider capacity for them and other access barriers.

Changes in Medicaid policy reduce access to a medical home

While the finding that uninsured children have higher rates of avoidable hospitalizations follows logically from the companion finding that they are less likely to have a regular source of care, the elevated rate of avoidable hospitalizations for children with public coverage, especially Medicaid, is less intuitive. Authors note that Figure 3 is based on somewhat older data, collected in 2001, prior to the most recent recession. Since then, there has been a major shift in Medicaid policy that has weakened the relationship between coverage and a regular source of care. As we will see in the next section, certain Medicaid enrollment options ensure better access to a medical home than others. Across a number of access indicators, children enrolled in managed care options receive

better access to preventive services. Children who are “unassigned” to a managed care plan or to a primary care provider report lower rates of preventive service use and experience higher rates of avoidable hospitalizations. (See Medicaid Enrollment Options text box.)

Immunization rates as a measure of access

Two-year-old “up-to-date on immunizations” rates for Medicaid children are illustrative. Current recommendations for childhood immunizations by the age of two include 16 doses of vaccines designed to protect against 11 types of serious childhood diseases.

Specifically, the CDC recommends:

- 4 doses of DTaP (diphtheria, tetanus, pertussis),
- 3 doses of poliovirus vaccine,
- 1 dose of MMR (measles, mumps, rubella),
- 3 doses of Hib (haemophilus influenza type B+),
- 3 doses of HepB (Hepatitis B),
- 1 dose varicella (chicken pox), and
- 1 dose of pneumococcal conjugate.

Current immunization recommendations change over time as new vaccinations are added to the list. Thus, vaccination experts have developed a shorthand to summarize the current recommendations based on the number of recommended doses. For example, the above-described recommendation is known as vaccination combination series: 4:3:1:3:3:1:1.

Vaccination coverage is an especially good access indicator for Colorado children. First, it has intrinsic value for a state that has historically struggled to meet Healthy People

2010 targets for immunization coverage and has faced serious pertussis outbreaks.⁴⁴ Second, Healthy People 2010 includes immunization as one of its “leading health indicators” because immunization also serves as an indirect indicator of access to a medical home and/or the adequacy of the public health infrastructure.⁴⁵ This is because the current immunization schedule requires multiple health visits between birth and 18 months. Two-year-old immunization rates also represent one of the only measures in which Medicaid performance can be directly compared to commercial health plan performance. Because immunization rates are typically tracked through insurance claims data, immunization rates for uninsured children are unknown.

Medicaid Enrollment Options

Since 1997, there have been four distinct enrollment options for a child newly enrolled in Medicaid. However, the relative emphasis on these different enrollment options has shifted several times over the last decade.

- 1) Their parent may choose a managed care plan (or “health plan”)
- 2) Their parent may choose a primary care provider off a state list of providers
- 3) The state uses a computer to “assign” children to a managed care plan or to a primary care provider
- 4) None of the above; the child remains “unassigned” because neither the parent nor the state has formally connected the child to a managed care plan or a primary care provider

Unassigned children (option 4) are entitled to seek services from any provider that participates in fee-for-service Medicaid. However, in contrast to the other enrollment options, the unassigned program places a greater burden on parents to identify a medical home that accepts Medicaid as payment. Whereas in 2000, a majority of children were enrolled in managed care, in 2006, a majority of children are “unassigned.”

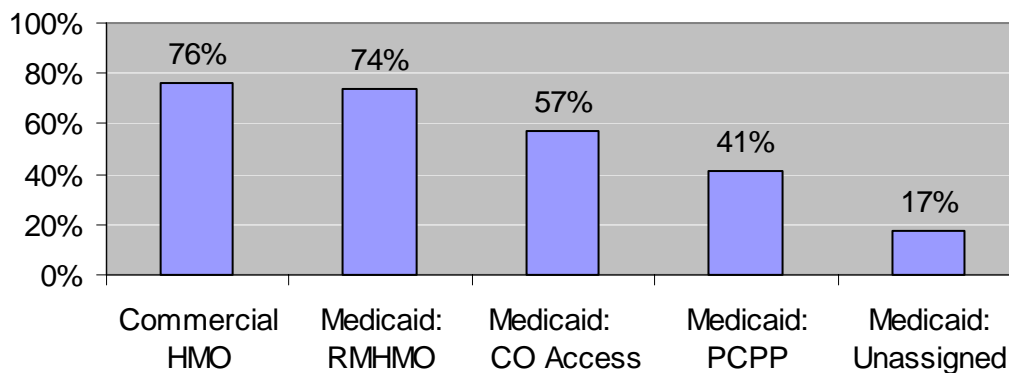
Figure 4 compares the two-year-old immunization rates of commercial and Medicaid health plans. An apples-to-apples comparison requires use of an older vaccine combination series (4:3:1:3:3)

and 2004 data. In 2004, the Medicaid plan Rocky Mountain HMO (RMHMO) reported immunization rates that rivaled commercial rates (74 percent vs. 76 percent, respectively). These rates approach the Healthy People 2010 goal of 80 percent vaccination coverage. Historically, Kaiser Permanente reported similar rates for Medicaid, but the health plan stopped participating after 2001.

Immunization rates vary greatly by Medicaid enrollment option

By contrast, children who participated in Medicaid's "unassigned" program had a vaccination rate of 17 percent, which was almost 60 percentage points lower than the RMHMO rate. Immunization rates reported by Colorado Access (CO Access) and the Primary Care Physician Program (PCPP) are intermediate to these extremes and well under benchmark, but are nonetheless triple and double the unassigned immunization rate, respectively. While some variability across health plans is expected due to differences in the populations enrolled, data collection issues, and statistical factors, the differences between managed care and unassigned performance on this indicator are unusually large and warrant action.

Figure 4: Two-Year-Old Up-to-Date on Immunization Rates, 2004
Commercial Health Plans vs. Several Medicaid Enrollment Options
(Vaccine Combination Series – 4:3:1:3:3)



Data Sources: Medicaid HEDIS (2004),⁴⁶ Colorado Business Group on Health.⁴⁷ Data Notes: Data for commercial health plans are aggregated into a single bar, where as Medicaid plans are reported separately as: Rocky Mountain HMO (RMHMO), Colorado Access (CO Access), the Primary Care Provider Program (PCPP), and "unassigned" fee-for-service.

Unassigned children also trail on other access measures

Medicaid unassigned immunization rates are not an aberration; Appendix E lists several other measures of access with similarly low scores for the unassigned program. For example, consistent with low immunization rates in HEDIS 2004, the same report shows that 70.1 percent of unassigned infants and toddlers had no well-child visits in the first 15 months of life, as compared to 0.6 percent of RMHMO infants and toddlers. Access to primary care providers is even less for older children, with just one-in-10 unassigned children over the age of two reporting a preventive visit in 2004. Appendix E reflects that access to primary care providers for unassigned children dramatically improved in 2005, as did their immunization rates. Even with this improvement, performance on access indicators for unassigned children remains 40-to-50 percentage points

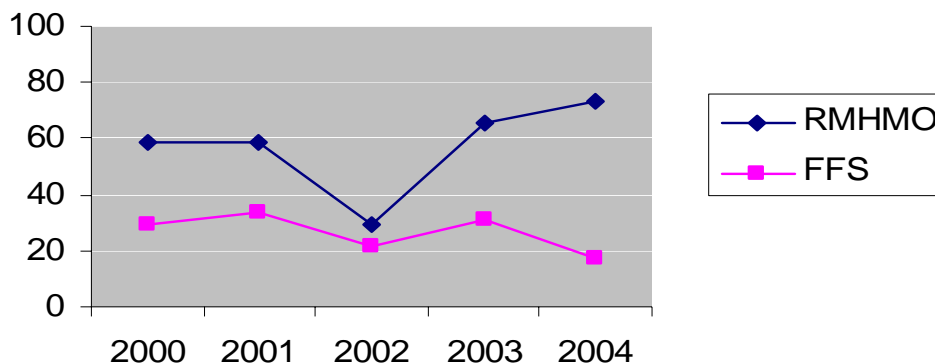
below the best Medicaid managed care plans RMHMO and Denver Health (reporting for the first time in 2005).

Poor Medicaid fee for service performance: fact or artifact?

Because the unassigned program now enrolls a substantial majority of the child Medicaid population, the implications of this poor access are troubling. Therefore, the skepticism voiced by some key informants about the validity of the measures bears addressing.

Some argue that the poor performance of the Medicaid unassigned reflects “selection bias;” that is, an over-representation of children who have access barriers unrelated to the unassigned program itself, such as rural residence or parents who do not prioritize preventive care services. We find this an unconvincing explanation except at the margins because the history of underperformance has been consistent across a five-year period when the underlying demographics of the unassigned program have greatly changed. (See Fig. 5a.) Whereas the unassigned program had a smaller and more rural enrollment in 2000, it now enrolls a large and increasingly urban population, including many metro Denver children.⁴⁸ Conversely, the urban/rural composition of Rocky Mountain HMO enrollment has also shifted over time and yet immunization rates have remained consistently high and comparable to commercial rates.⁴⁹ Note that the dip in immunization coverage in year 2002 resulted from state policy in response to a national shortage of the DTaP vaccine.⁵⁰ Finally, Denver Health is widely recognized as serving an especially high-risk population of poor, urban and disproportionately Hispanic/Latino children and yet it reported the highest immunization rates for the entire Medicaid program in its first year of reporting (85.2 percent for the 4:3:1:3:3:1 series in 2005).⁵¹

Figure 5: 2-year old Up-to-Date Immunization Rates, 2000-2004
High vs. Low- Performing Medicaid Enrollment Options
(Vaccine Combination Series – 4:3:1:3:3)⁵²



In 2004, the Medicaid plan Rocky Mountain HMO (RMHMO) reported immunization rates that rivaled commercial rates. By contrast, children who participated in Medicaid's "unassigned" program had a vaccination rate of 17 percent, which was almost 60 percentage points lower than the RMHMO rate. The "unassigned" program has consistently reported very low immunization coverage rates (2000-2004).

Another common explanation for unassigned underperformance relates to difficulties with measurement. For example, immunizations delivered in public health settings may be inconsistently captured in vaccination coverage rates. Unquestionably, managed care

organizations, especially integrated delivery systems such as Kaiser Permanente and Denver Health, have an advantage in collecting and reporting performance measures. However, not one key informant, including those that raised the issue, was willing to ascribe entirely to data collection issues the 60 percentage point difference in performance on 2-year-old immunizations in 2004. (See Figure 5 and Appendix E.)

Evidence mounting that unassigned children face access barriers

Furthermore, several other data sources provide corroborating evidence of access problems in the Medicaid unassigned program, including lower satisfaction levels in parent surveys, evidence of unassigned emergency department use for primary care services, and higher rates of avoidable hospitalizations. For example, the national CAHPS (parent satisfaction) survey permits a comparison of Colorado Medicaid managed care child enrollees to Medicaid children enrolled in similar plans nationwide. Parental satisfaction is assessed along several dimensions such as: getting needed care, getting care quickly, doctors' communication, office staff helpfulness, customer service, and overall ratings. Whereas Rocky Mountain HMO scored above the 75th percentile for all measures of parent satisfaction in 2004 except one (customer service), Colorado Medicaid's unassigned program does not score above the 50th percentile on any measure and rates below the 25th percentile on several (including customer service and three of the overall ratings).⁵³ In addition, a state analysis of emergency department diagnoses for unassigned and PCPP members (adults and children) revealed that many seek care for conditions treatable at the primary care level: ear infections, colds, viruses, stomach aches, and headaches.⁵⁴

RMHMO experience suggests quality improvements can positively affect access

Finally, there is evidence that Rocky Mountain HMO has implemented provider-level quality improvement efforts that may account partially for its higher performance on immunization and access measures. For example, a recent (2004-2005) state "focused study" report probed the issue of access to children's Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) services. The report revealed that Rocky Mountain HMO providers were much more likely to report that it is "easy to obtain current EPSDT visit rates" (69.8 percent RMHMO vs. 38.1 percent managed care average). RMHMO providers were also more likely to "desire" and "regularly" receive EPSDT visit information.⁵⁵ Research has shown that providing physicians and other providers with information about their performance on access and quality indicators is key to improving outcomes. As will be discussed in later sections of the paper, authors also believe that better provider capacity also plays a role in improving performance on access indicators.

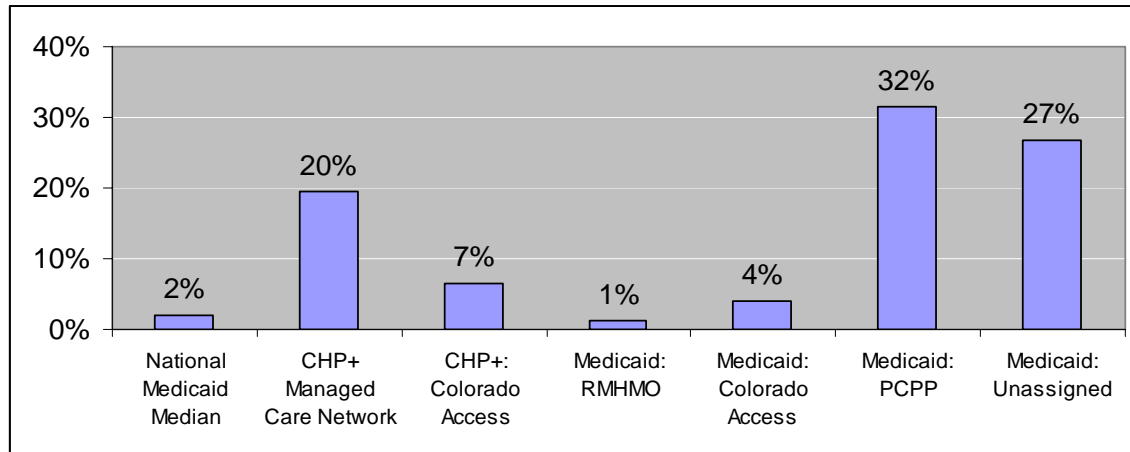
In sum, multiple access measures from different data sources suggest that the unassigned Medicaid program provides inadequate access to a medical home with resultant poor health outcomes for children. Key informants expressed as much concern about "a [Medicaid] card that provides no access" as they did about uninsured children. On the other hand, dramatically higher performance reported by other Medicaid health plans has important policy implications.

CHP+ access indicators show mixed performance

Although key informants were much more likely to focus on Medicaid-related access issues, CHP+ quality measures also suggest some room for improvement, particularly in the areas of recommended well-child and adolescent visits. On the other hand, high percentages of CHP+ children over the age of two had at least one primary care visit in 2005. As in Medicaid, program performance tended to lag most significantly for those not enrolled in more traditional forms of

managed care (e.g., those enrolled in the CHP+ managed care network). (See Figure 6 and Appendix E.) However, a majority of CHP+ children are enrolled in managed care plans that experience higher levels of performance and less variability among them.

Figure 6: No (Zero) Well-Child Visits in the First 15 Months of Life, 2005



Source: Department of Health Care Policy and Financing, 2005.

Data Note: Medicaid Primary Care Provider Program (PCPP)

Parent perceptions of access contrast sharply with other access measures

Across several surveys of Colorado and Denver metro parents, consistently high percentages of parents report that their children can get care when needed and indeed their children receive all needed care. (See, Figure 7 and Appendices B and C.) Colorado parents' expressions of confidence in accessing care for their children are puzzling, given the barriers to preventive care access quantified in the previous sections. Although the strength of their confidence varies somewhat by insurance status – for example, parents of uninsured children are more likely to be “somewhat” rather than “very” confident – overall, very few parents worry about accessing services for their children.

For example, the previous sections documented poor outcomes across a number of measures of preventive services access for “unassigned” Medicaid children. Yet, 65 percent of parents of unassigned Medicaid children report that “getting needed care” for their child is “not a problem.” While this level of parental satisfaction places the Colorado unassigned program below the national Medicaid median on this measure, the fact that two-thirds of parents perceive few access barriers is nonetheless surprising.⁵⁶ (See Figure 7.) Satisfaction is even high among parents of CSHCN, although they are more likely to report unmet needs and high out-of-pocket costs.^{57,58}

Low levels of health literacy may be at the heart of these apparently contradictory findings. According to the Healthy People 2010 definition:

*Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.*⁵⁹

The National Network of Libraries on Medicine further elaborates that,

...health literacy includes the ability to understand instructions on prescription drug bottles, appointment slips, medical education brochures, doctor's directions and consent forms, and the ability to negotiate complex health care systems. [emphasis added] Health literacy is not simply the ability to read. It requires a complex group of reading, listening, analytical, and decision-making skills, and the ability to apply these skills to health situations.⁶⁰

With regard to access, health literacy assumes that parents are aware of current recommendations for children's preventive services and actively seek to comply with them. Figure 7 reviews professional recommendations for preventive services and compares high scores on parent perceptions of access to actual utilization, which is often low. Reconciling these findings suggests that parents use a narrow definition of "need" when answering questions about access to and receipt of needed services. In particular, preventive services do not appear to be included by all parents in such assessments. There appears to be a disconnect between professional recommendations for preventive services and parents' perceptions of need.

Figure 7: Professional Recommendations for Preventive Services, Preventive Service Use and Parental Perceptions of Access

	Professional Recommendation for Preventive Services	Preventive Service Use	Parent Perception of Access
Preventive Medical Care	American Academy of Pediatrics (AAP) guideline: Varies by age, but no fewer than one well child visit per year.	77.4 percent of Colorado children received a preventive medical visit in the past year. ⁶¹ 10 percent of CO Medicaid children (ages 2- 19) enrolled in the "unassigned" option used one-or-more preventive services in 2004. ⁶²	98 percent parents report that their children "received all needed care". ⁶³ 65 percent of parents of "unassigned" Medicaid children reported in 2004 that "getting needed care" was "not a problem." ⁶⁴
Preventive Dental Care	American Academy of Pediatric Dentistry (AAPD) guideline: An oral risk assessment between 0-12 months; biannual visits after 1 year	27 percent of kindergarten and 26 percent of third grade CO children had untreated dental decay (cavities). ⁶⁵	91.5 percent of Colorado parents report that their children received all "needed dental care." ⁶⁶

Denver metro providers and community-based organizations have developed multiple strategies for addressing low levels of health literacy, including: client education, cultural competency training for providers, case management, and care coordination. However, many of these efforts are too sporadic and fragmented to be maximally effective.

Access to care conclusions

Considering these data collectively, we draw the following conclusions about how well Denver metro children are able to *access* health care services:

- Access to health care services for the commercially insured appears to be good, but this assessment is constrained by very limited publicly-available data.
- Access for the underinsured is almost entirely unquantifiable.
- A majority of the 240,000 children statewide that are covered by Medicaid are “unassigned” to a managed care plan or to a primary care provider and have unacceptably poor access outcomes, across a number of indicators and data sources.
- Better Medicaid performance is possible, as the best Medicaid health plans (past and present) report results on access indicators that approach commercial rates.
- In both CHP+ and Medicaid, the more traditional managed care plans perform consistently better than the fee-for-service networks.
- Although the Medicaid agency does a good job in monitoring performance on access across several different dimensions and across different health plan options, state policy has not consistently rewarded high performance.
- Many parents do not appear to prioritize preventive services.
- Coordinated strategies to address health literacy may be needed.

Barriers to Access for Denver Metro Children

As summarized in the text box below, national research on barriers to access concludes that access is affected by client demand for services, financial barriers to access (especially insurance coverage), and structural barriers intrinsic to the health care delivery system. These factors interrelate and can be difficult to disentangle. For example, low levels of client demand for preventive services may result from personal preferences or may be conditioned by attempts to access such services that are frustrated due to inadequate capacity. On the other hand, deficits in one domain can sometimes be mitigated by strength in another. For instance, potential access barriers created by high rates of uninsured can be partially offset through a strong safety net system. It is therefore important to consider relative strengths and weaknesses in each domain as well as their overall effect on access. The following analysis of barriers to access is organized according to this demand, coverage, and capacity framework.

What are the major influences on demand for services?

Demand for health services depends on the size of the population and its relative burden of disease. It also relates to health literacy and health care seeking patterns. As described earlier, Denver metro children have become poorer in recent years. Poverty is associated with public program participation and with poor health outcomes. Thus, demand for services is shaped by these factors.

Similarly, the growing ethnic diversity also affects demand. Local experts predict that the divisive state and national debates on immigration will exacerbate the existing “fear factor”

and suppress demand for services. In particular, many Hispanic/Latino children who are citizens live in “mixed status” households, with one or more parents who are not citizens.⁶⁷ For children with undocumented parents, fear of detection is thought to reduce demand for public insurance, even for otherwise eligible children, and to decrease the overall level of care sought. National studies on emergency department use by immigrant children are consistent with this theory of dampened demand.⁶⁸



What are the *coverage* trends and options for expanding coverage?

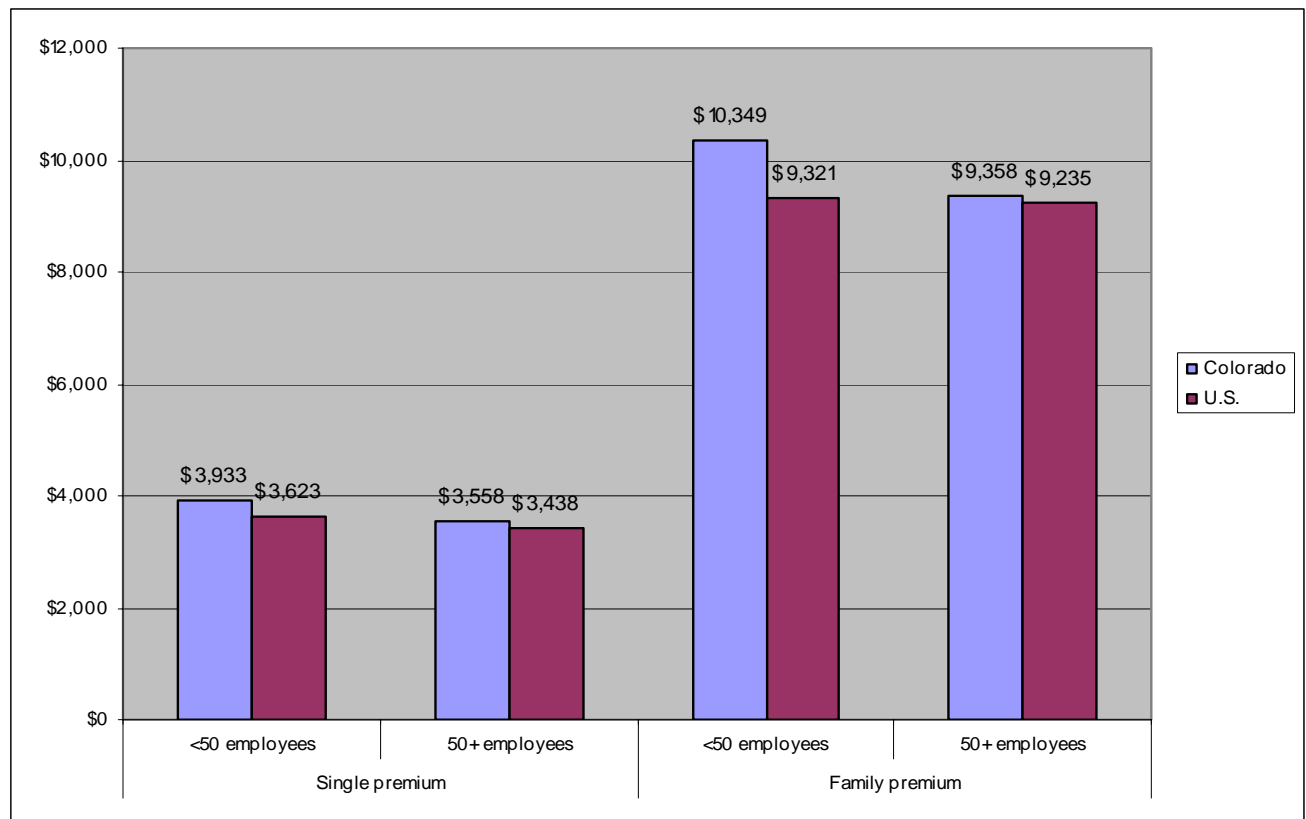
Coverage is a major determinant of access to health care because it pays providers, connects individuals to a regular source of care, and enables use of medical and dental services.⁶⁹ This next section reviews the major sources of coverage (or lack thereof) for Denver metro children including employer-sponsored coverage, public insurance, and no coverage. Relevant trends are noted as are priority populations for expanding coverage.

Employer coverage down in Colorado and nationally

Over half of Colorado children are covered by private insurance, primarily employer-sponsored coverage. This rate of private insurance coverage is a few percentage points higher than the national rate.⁷⁰ Although Colorado has faced similar *percentage point losses* in employer-sponsored coverage, it started and remains at a higher level of coverage than the rest of the nation.⁷¹ Key informants believe this higher rate of employer-sponsored coverage reflects population characteristics, such as Colorado's high per capita income and percentage of college graduates, which are correlates of employer-sponsored coverage. The Colorado commercial insurance market is similar to the national average in terms of premium rates, premium growth, and product designs.

Research suggests that employer rates of offering coverage remain largely unchanged, thus declining employee take-up rates has driven the drop in employer-sponsored coverage. Affordability is at issue, and Colorado's relatively unconcentrated and competitive commercial market has not insulated it from high rates of premium growth.⁷² Nationally, insurance premiums have risen by 73.8 percent from 2000 to 2006, while the U.S. median income has increased 11.6 percent over this same period.⁷³ In 2003, Colorado had higher-than-average family premiums in small Colorado firms. However, other premium levels in Colorado largely mirrored national trends, as illustrated in Figure 8.⁷⁴ In Colorado and nationally, large premium increases have led to changes in the insurance market that favor plans with more consumer cost-sharing.

Figure 8: Average Total Premium per Enrolled Employee: Colorado and the U.S. (2003)



Source: Agency for Healthcare Research and Quality. Medical Expenditure Panel Survey Insurance Component Tables, 2003.

Underinsurance: A stealth threat

Key informants view trends in the employer market with concern. Citing the example of high deductible plans that lack coverage for primary care, many share the belief that underinsurance is a growing “stealth” threat to access. A theme of “paying more for less” emerged. Local experts chronicled reduced coverage, trimmed benefit packages, and increased premiums and cost-sharing requirements. However, very little data exists to quantify the phenomenon of underinsurance and to monitor any impacts on access and health status. For example, in 2001, 4.4 percent of Denver metro families of insured children have unpaid medical bills, but little else is known.⁷⁵

Children with special health care needs (CSHCN) appear to be especially likely to be underinsured. One survey found that over one-third (39 percent) of Colorado parents with children with severe disabilities view themselves as underinsured.⁷⁶ In 2001, 4 percent of Colorado CSHCN were uninsured, 9 percent had a gap in coverage during the year, and 25 percent said they were underinsured.⁷⁷

Coverage option:

Expanding private insurance

Given Colorado’s high rate of employer-sponsored coverage and the fact that most parents of uninsured children work, expanding coverage through employers holds intuitive appeal. Detailed analyses of specific coverage strategies are beyond the scope of this paper. Briefly, options to expand private coverage aim to address the affordability of coverage and include tax credits for non-group coverage, small employer tax credits, small group insurance purchasing pools, reinsurance strategies, and regulatory reform. Although states have experimented with

Case Study: Maine’s Dirigo Health

Maine’s Dirigo Health Reform was a coverage effort that was driven by the newly elected governor in 200X. The goal was to make quality, affordable health care available to every Maine citizen within five years and to initiate new processes for containing costs and improving health care quality. Although the plan passed with bipartisan support, the program has experienced problems and has not met its enrollment goals.

Strategies included:

- Created Dirigo Choice, a program designed to help small businesses, the self-employed, and individuals afford health coverage.
- Implemented subsidies to small businesses and low-income workers.
 - Small businesses pay up to 60 percent of premiums.
 - Low-income individuals under 300 percent of federal policy level receive a subsidy between 20 percent-to-80 percent of the cost of coverage.

Outcomes:

- Enrolled 8,000 statewide (since 2003).
- Enrolled 50-to-70 percent who were previously insured.
- Experienced high premiums.
- Received complaints from businesses for administrative complexity.
- Experienced resistance to the cost containment aspect of the plan from providers.
- Experienced resistance to the assessment of health insurance claims to fund the program.

Lessons Learned:

- Local initiatives are very difficult.
- Persistent political will is essential.
- Insurance product must be sustainable to overcome employer skepticism.
- Support from public, press, advocates, and elected officials are key to success.

Funding Contribution:

- Maine Health Access Foundation (MeHAF) provided \$1.6 million in technical assistance

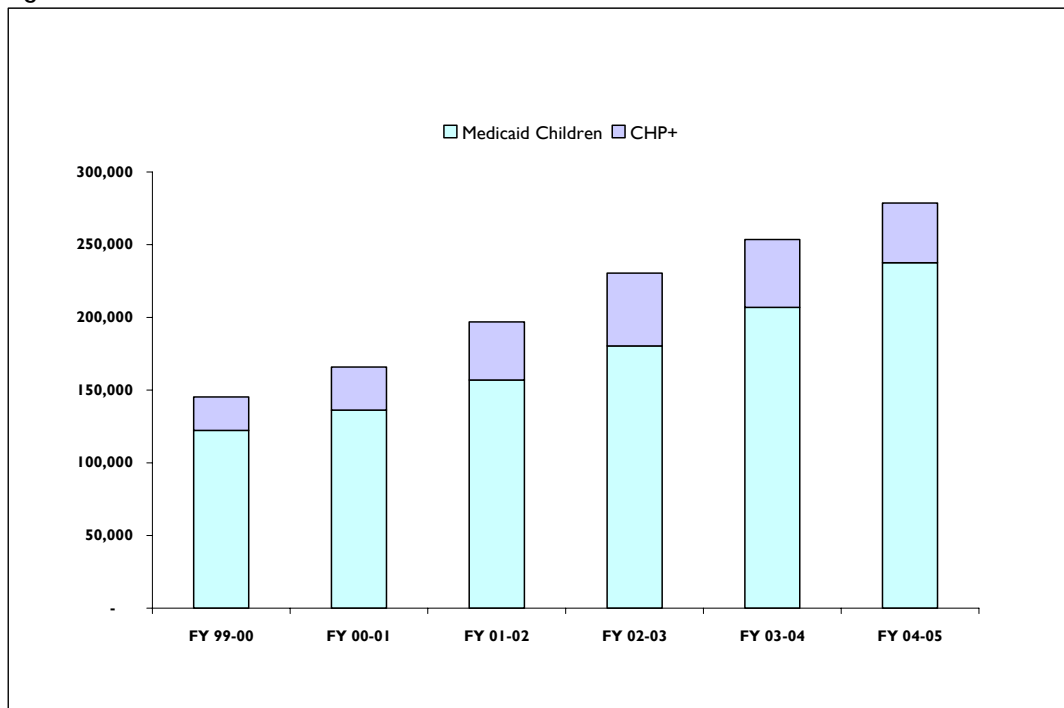
each of these strategies, authors were unable to identify a private sector approach that focuses exclusively on children. Across the state experiments to date, few have had substantial effects on either affordability or on uninsured rates, primarily because the subsidies have been too small to spur demand.^{78,79,80} Some state programs, such as Maine's Dirigo health, have experienced high administrative costs. Research on private sector reforms concludes that for poor and near-poor (under 200 percent of the federal poverty level) families, "very large" premium subsidies need to be provided in order to prod take-up.⁸¹ Additionally, research suggests that some level of premium subsidy is typically necessary for families under 300 percent of the federal poverty level.⁸²

Public insurance buffers declining employer coverage for children

Enrollment in public insurance has offset declining rates of employer coverage. As a result, statewide child uninsured rates have remained flat at around 14 percent. As Figure 9 shows, Medicaid enrollment doubled between 2000 and 2005, and now enrolls 20 percent of the state's child population. However, Colorado still has a lower percentage of residents on public coverage than the national average, due to its comparatively low income-eligibility ceilings.⁸³

Two main factors account for the growth in public program enrollment: the creation of the CHP+ program in the late 1990s and the recession-related increases in the child poverty rate. More recently, an increase to the tobacco excise tax resulted in modest Medicaid and CHP+ eligibility expansions for children. The latter were implemented in 2005 and are therefore not captured in the enrollment data in Figure 9.⁸⁴

Figure 9: Medicaid Child and CHP+ Enrollment Trends, 2000-2005



Immigration policy results in coverage barriers

Medicaid enrollment is expected to level off as the economy recovers from the recession. However, future trends in Medicaid enrollment and access will be very much affected by provisions of the Deficit Reduction Act (DRA), especially new rules that require all applicants to document their citizenship status. Although undocumented residents are the intended targets of these and similar state immigration policies, many key informants believe that low-income *citizens* are significantly impacted. For example, automatic eligibility for children born to mothers on Medicaid has ended, despite the fact that such children are U.S. citizens. Long lines have formed at the Office of Vital Statistics and at motor vehicle departments as people seek birth certificates, drivers licenses, and state identification for infants.

Nearly everyone close to the process expresses frustration about the “evolving” federal policy and confusion about state implications. Unintended consequences have already emerged and corrective legislative action may be pursued.⁸⁵ Many key informants believe that the DRA will increase the number of children who are eligible but not enrolled in Medicaid. Since the federal proof-of-citizenship rules took effect in July, some states have already documented a significant decline in the number of Medicaid applications and an increase in the percentage of incomplete applications. New Hampshire has experienced a 50 percent decline in the number of Medicaid applications.⁸⁶ Since Medicaid currently covers 20 percent of children in the state, key informants predict that immunization rates and other maternal and child health indicators may begin to be affected.

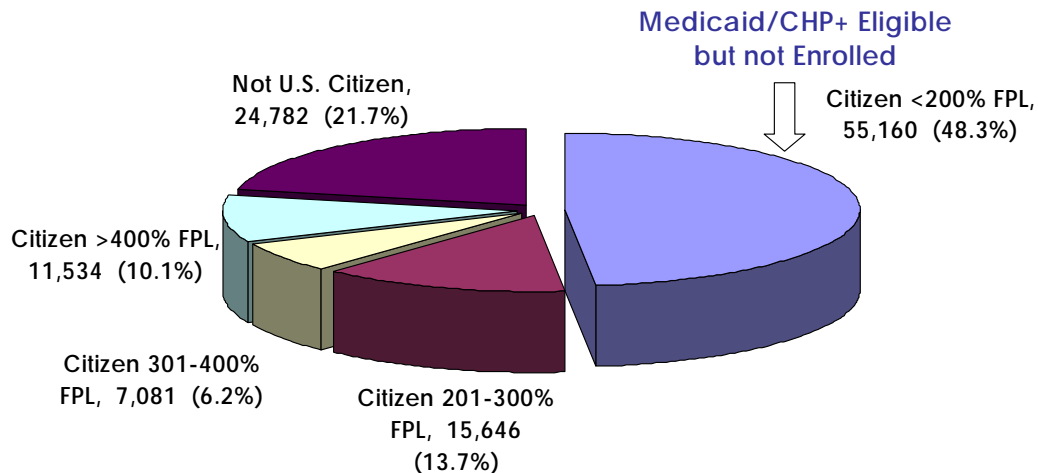
While much of the recent focus has been on DRA provisions that require documentation of citizenship, policy analysts warn of other potential access barriers that could result from states taking advantage of new federal flexibility around benefit design and cost-sharing.⁸⁷ Specifically, narrowed benefit packages and increased cost-sharing, if adopted, also could impede access.

The typical uninsured child is a citizen, Hispanic/Latino, and eligible for public programs

As noted, 114,000 Denver metro children are uninsured.⁸⁸ Younger children are somewhat less likely to be uninsured than older children.⁸⁹ Policy implications for increasing coverage are revealed when uninsured children are divided into groups according to income and citizenship, as in Figure 10.

For example, nearly half (48 percent) of all children who are uninsured in Denver metro are currently eligible for public programs (Medicaid or CHP+). That is, they are U.S. citizens and live in families with incomes under 200 percent of the federal poverty level. Another 14 percent of children live in middle-income families under the “affordability line” of 300 percent of the federal poverty level.⁹⁰ Just 16 percent of children live in families with incomes threshold and reasonably can be expected to pay for their own coverage. Finally, approximately one-in-five uninsured children in Denver metro are not U.S. citizens. Although these children are primarily from poor and near-poor families, their citizenship status often makes them ineligible for Medicaid or CHP+.⁹¹

Figure 10: Uninsured Children in Metro Denver by Federal Poverty Level and Citizenship



Data Source: Current Population Survey (2003-2005)

As noted, Figure 10 raises several policy implications worth exploring. First, the vast majority of uninsured children in Denver metro reside with low- and middle-income families (i.e., those under 300 percent of the federal poverty level) that will need substantial subsidies in order to be able to afford private coverage. Second, just about half of Denver metro children already qualify for subsidized care through their eligibility for public programs. A strategy that successfully enrolls all Medicaid and CHP+ eligible children in Denver metro would half the uninsured rate from approximately 16 percent to eight percent.

Eligible-but-not-enrolled in public programs

Public program “take-up” rates vary substantially from state to state, suggesting that this is an issue amenable to intervention. For example, in Massachusetts, 90 percent of eligible persons are enrolled in Medicaid. As a result, just seven percent of children in Massachusetts are uninsured.⁹² Metro Denver key informants believe that the substantial barriers to enrollment for local children include: lack of knowledge about public programs and their eligibility requirements, ongoing technical problems with the state’s automated enrollment system, recently-adopted documentation of citizenship requirements, and state ambivalence toward outreach. A substantial body of research on enrollment patterns confirms that maximizing public program penetration absolutely requires state *leadership*, combined with explicit policies and coordinated programs. Proven strategies include simplified applications, community-based outreach and enrollment options, passive and less frequent “redetermination” (of eligibility) processes, and covering parents.

Coverage option: simplify application processes

Colorado's Covering Kids program has observed that many Medicaid and CHP+ applications are denied due to missing information. Lack of a consistent, state-supported means for follow-up is an aggravating factor. Thus, the goal of simplification is to reduce the amount of information required from the applicant. States have found success with self-declaration of income, joint program applications, community-based eligibility/enrollment, and automatic enrollment of eligible children based on determinations of other means-tested programs.^{93,94,95} School-based enrollment appears to be a particularly promising strategy, especially if linked to the free and reduced lunch program that has similar income requirements.⁹⁶

Coverage option: improve retention strategies

In addition, public program participation rates can be improved by simply focusing on retention. Several studies have documented that frequency of redetermination is directly related to a phenomenon known as "churning" that occurs when children cycle on and off coverage frequently. In Colorado, the average eligibility span for children on Medicaid is well under one year. Nationally, children who lose public coverage typically do not find employer-sponsored coverage, but rather, become uninsured, especially in states like Colorado with separate SCHIP programs.⁹⁷ Instability of coverage is associated with poor preventive care outcomes and programs with high churn rates can be unattractive to managed care plans.⁹⁸ States have improved public program take-up and stability in coverage through policies such as twelve months continuous enrollment and passive redetermination processes, such as Louisiana's "ex parte" policy (see Louisiana case study text box).

**Case Study:
Louisiana Enrollment Initiative**

Prior to Hurricane Katrina, Louisiana implemented a multi-pronged initiative to reduce the number of children who are eligible, but not enrolled, in public coverage. The program adopted a customer-centered outreach and enrollment framework that stresses simplification and seamlessness.

Strategies included:

- Outreach training to school nurses and other permanent community members.
- Simplification of eligibility procedures.
- "Ex parte" renewals that use information from other programs (e.g. food stamps).
- Coordination with other programs such as school lunch, food stamps, TANF.

Outcomes:

- Reduced child uninsured rate to less than 10 percent.
- Enrolled 52,000 of 77,000 eligible children.
- Doubled continuous coverage rate.

Keys to Success:

- Support from the governor.
- State eligibility & retention policy changes.
- A quality, "marketable" coverage program.

Funding Sources:

- Robert Wood Johnson Foundation

Coverage option: resolve unique enrollment barriers for mixed status families

Finally, the vast majority of metro Denver parents of eligible-but-not-enrolled children are themselves uninsured.⁹⁹ By definition, eligible-but-not-enrolled children are citizens, however, approximately half of their parents are not citizens.¹⁰⁰ These “mixed status” families, some of whom have undocumented members, face unique barriers that often require specialized interventions that consider issues of language, cultural attitudes about health care, and fear of deportation. Several California communities have addressed this issue head on by creating a child coverage program that does not have documentation requirements. A rigorous evaluation by Mathematica concluded that by destigmatizing immigration status, enrollment in all children’s programs, including Medicaid and SCHIP, increased. (See Santa Clara case study text box.)

In December 2000, the Santa Clara County Board of Supervisors approved use of tobacco settlement funds to create a health insurance program designed to fill gaps left by Medicaid and SCHIP. A coalition of community organizations, county agencies, faith-based groups, labor, and the local Medicaid health plan developed the initiative to improve coverage for low-income children in the county. The Santa Clara County Health Insurance Initiative has successfully increased coverage for children by enrolling eligible children in Medicaid and SCHIP and in a new program called Healthy Kids that dramatically increased access to care for enrollees.

Strategies included:

- Created Healthy Kids for children under 300 percent of federal poverty level and ineligible for Medicaid/SCHIP.
- Provided comprehensive benefits, with premiums of \$4-\$18 per family per month.
- Implemented comprehensive outreach to enroll eligible children in Medicaid/SCHIP.
- Conducted a \$1.5 million research-quality evaluation.

Outcomes:

- Enrolled 14,000 children (as of July 2006).
- Enrolled primarily Latino children between the ages of 5-12 who are in good health and from two-parent, non-English speaking households where one or both parents work.
- Increased by 28 percent enrollment in Medicaid and SCHIP.
- Increased proportion of children with usual source of medical care and dental care.
- Reduced unmet need for medical and dental care by 55 percent.
- No increase or decrease on emergency department use.

Keys to Success:

- Involvement of advocacy groups.
- Availability of local public funds for the program.
- Simple program SCHIP “look-alike” design and simple message “All Kids Covered.”

Funding Sources:

- Ongoing program funding has been provided by county and city governments, tobacco tax, businesses, providers, and the David and Lucile Packard Foundation.
- The California Endowment in 2003 launched a \$45 million 5-year initiative to replicate the Santa Clara model in other California counties.

Expanding public coverage

As noted, a substantial portion of the uninsured children in Denver metro will need premium subsidies—through an employer or through a public source—to afford coverage. Half of uninsured children already qualify for public “subsidies” through their eligibility for Medicaid or CHP+. Many key informants favor further expanding public programs as the primary means for extending coverage to uninsured children, because there is an existing infrastructure on which to build as well as federal support in terms of matching dollars. Research has demonstrated that public program expansions have been successful in improving child coverage rates.¹⁰¹ In general, states with higher eligibility ceilings in their public programs have lower rates of children who are uninsured. However, research has also found that public program expansions may “crowd-out” private coverage, particularly for small firms with predominantly low-wage workers.¹⁰² Public/private hybrid models also exist, but detailed analyses of specific coverage options are beyond the scope of this paper.

Uninsurance is a family issue

Several key informants noted that lack of family coverage serves as a barrier to child enrollment. Multiple studies confirm that children are more likely to be enrolled in public programs if parents are also covered.¹⁰³ Child access to preventive services also appears to improve with family coverage.¹⁰⁴ Ironically then, one means for addressing the eligible-but-not-enrolled child population is through strategic coverage expansions to other populations including parents and undocumented children.

Coverage conclusions

Considering the state and local patterns of coverage, what are the major coverage trends and the priority populations for expanding coverage?

- Over half of Colorado children receive their health coverage through a parent’s employer.
- Despite the decade-long decline in employer-sponsored coverage, especially dependent coverage, increased public insurance enrollment has stabilized the child uninsured rate.
- Colorado has a higher child uninsured rate than the national average, with an estimated 114,000 uninsured children in Denver metro.
- Approximately half of uninsured children in Denver metro are eligible for public coverage, but face administrative, policy, and other barriers to their enrollment and retention.
- Analyses on insurance affordability conclude that most families under 300 percent of the federal poverty level require large subsidies of their premiums in order to afford coverage.
- There are two groups below this affordability line that do not currently qualify for public coverage: children between 200 percent-to-300 percent of the federal poverty level and many non-citizen children.
- Three options exist for expanding coverage to more children: addressing private insurance affordability, enrolling more children in public coverage, or hybrid models.
- A program or policy that successfully covers all children under 300 percent of poverty would reduce child uninsured rates from nearly 16 percent in Denver metro to under three percent.

Is provider capacity adequate?

Given relatively high uninsured rates for adults and children in Colorado coupled with the poor performance of the Medicaid unassigned program, many key informants strongly urged that any coverage expansion be paired with a concerted and sustained effort to improve provider capacity

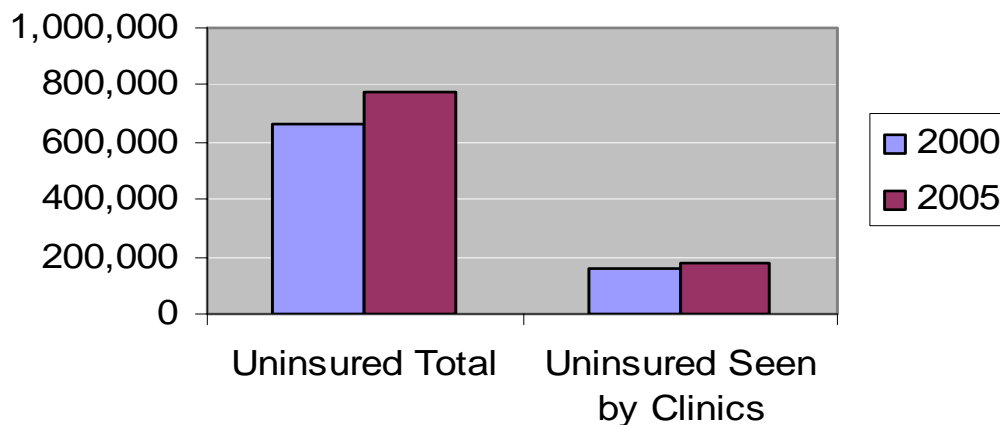
for these vulnerable populations. Specifically, concerns about the adequacy of the Medicaid provider network in metro Denver (and statewide) emerged as a major theme. The adequacy of safety net provider capacity was raised in this context and vis-à-vis providing a medical home to the uninsured. This section draws heavily on key informant insights to summarize what is known about provider capacity in Denver metro. In the future, the Colorado Health Institute's Safety Net Indicator and Monitoring project may take this analysis further.

Key informants believe that the diminishing willingness of private physicians to participate in public programs contributes to the large number of unassigned Medicaid children who have no medical home and face other access barriers. Theoretically, the safety net can and does buffer some of these access concerns. For example, the health care safety net has strengthened the capacity of public insurance programs by participating as providers and as managed care plans. However, safety net capacity appears to be inadequate to the growing numbers of Medicaid enrollees and uninsured individuals, especially in suburban areas.

Inadequate safety net capacity

Indeed, since 2000, uninsured low-income and medically needy populations have been growing faster than safety net providers have been able to expand.¹⁰⁵ (See Fig. 11.) In addition to a Medicaid enrollment that has doubled in size, safety net providers have faced rising numbers of uninsured patients (especially adults) and, increasingly, patients who are underinsured. Many safety net providers have expressed interest in expanding but require time and promise of a stable financing base.

Figure 11: Uninsured total population and uninsured patients (adults and children) seen at Colorado Federally Qualified Health Centers, (2000 and 2005)



Data Source: Colorado Health Institute analysis of CCHN Uniform Data System

As nationally, the major components of the Colorado health care safety net include public hospitals, federally qualified health centers and other community health clinics, local health departments, free clinics, school-based health centers, and federal and state programs (e.g. family practice residency programs).¹⁰⁶ Not all of these providers offer comprehensive services. Rather, they fill various niches defined by age, service, and funding streams.

Arguably, federally qualified health centers (FQHCs) represent the backbone of the safety net in Denver metro, especially Denver Health and Hospital Authority. Statewide, FQHCs provided service to nearly 400,000 individuals in 2005, of which nearly one-half were uninsured and another one-third were covered by Medicaid.¹⁰⁷ Just over one-third of uninsured children in Denver metro are able to access care through one of the Denver metro FQHCs, including Denver Health. And this may overstate access for uninsured children. It is difficult to imagine that the remaining safety net providers – some of which do not provide comprehensive services – fully meet the needs of the remaining two-thirds of uninsured children. Key informants estimate that only about one-half of uninsured children are able to access care through a safety net provider due to limited capacity.

Underinsurance affects safety net provider capacity

Underinsurance also has created new capacity challenges as individuals with catastrophic-only coverage come to safety net organizations to pay out-of-pocket for primary care. One safety net provider commented that many organizations are not “built on the high deductible model,” noting that insured individuals have not traditionally been eligible for sliding fee scales. In response to this increased demand, some safety net providers have had to resort to waiting lists and lottery systems. Patients have had to endure longer waits to obtain appointments.

Poor private provider participation due to multiple factors

Although greater private provider participation in public programs could potentially alleviate safety net provider capacity concerns, respondents noted that poor participation rates reflect low reimbursement, administrative complexity, and HCPF policies and business practices. One recent survey of privately practicing pediatricians found that only 23 percent accepted new Medicaid patients in the Denver metro area.¹⁰⁸ The same survey found that physician barriers to participation include poor reimbursement, administrative barriers (e.g., complex billing and eligibility procedures), and lack of patient and family supports (e.g., social services and case management). In addition, state and federal scholarships, physician loan repayment programs, physician recruitment programs, and other programs that require public program participations are less available to providers now that Denver metro counties have allowed their shortage designations to lapse.¹⁰⁹ National trends are similar; fewer physicians have been accepting new Medicaid patients, especially physicians in solo or small practices.^{110,111}

A large multi-pronged initiative known as the Colorado Children’s Health Care Access Program (CCHAP) is underway to encourage greater primary care physician participation in Medicaid and CHP+. CCHAP has enrolled approximately 13,000 formerly “unassigned” children in 17 private pediatric practices since its inception. CCHAP will be discussed at greater length under “practice redesign.”

This strategy of private sector engagement poses certain advantages, given that private practitioners appear to have excess capacity and are more likely to be located in the suburbs where low-income populations are growing. (See Appendices G and H.) However, some respondents have questioned private provider commitment to low-income, predominantly Hispanic/Latino populations, that cycle on and off insurance coverage. Pediatric leaders maintain that practices are quite willing to serve Medicaid and CHP+ children given adequate reimbursement and administrative, clinical and family supports. It is important to underline that such debates take place against a backdrop of large reimbursement differentials among primary

care providers that give rise to perverse incentives. These financing and reimbursement dilemmas are discussed in the section entitled financing considerations.

Colorado Access' withdrawal from Medicaid market exacerbates capacity issues

Over the last decade, the Colorado Medicaid program has experienced gyrations in financing and delivery system arrangements for acute care services, vacillating between embracing and rejecting theories of managed care and "managed competition." For example, the legislature mandated 75 percent enrollment in managed care plans in the 1990s, only to witness subsequent plan instability, commercial health plan withdrawals, and successful lawsuits over rate-setting brought by health plans against the state Medicaid agency. In response and with the exception of capitated behavioral health services, Medicaid largely returned to a fee-for-service reimbursement strategy.¹¹²

After 2001, only Colorado Access, a nonprofit safety net provider HMO that serves exclusively publicly insured individuals, continued to maintain a full-risk capitation contract with the state.¹¹³ Thus, the withdrawal of Colorado Access from the Medicaid managed care market in August 2006 represents only the most recent example of this broader trend of managed care instability. Nearly universally, key informants characterized Colorado Access's decision as "disruptive" and as having exacerbated provider capacity constraints, increased client confusion, and most importantly, diminished the population-based perspective. Several key informants underlined that even if the state is successful in its bid to recruit all former Colorado Access providers to participate in the fee-for-service program, there is a net loss to the community. As one respondent described, "the dream of Colorado Access was not just an HMO. The vision was that the safety net comes together under one roof – CHP+, Medicaid, the Colorado Indigent Care Program (CICP), state programs – in a way that would allow it to rationalize care." Colorado Access' rates on child access and quality indicators, while higher than unassigned rates, were lower than the best Medicaid managed care plans, suggesting that this vision was imperfectly implemented.

Nonetheless, many pointed to specific Colorado Access activities that would need to be absorbed by primary care providers, the Medicaid agency, or forgone entirely: emergency department utilization and quality tracking, disease and pharmacy management, case management and care coordination, client incentives (e.g., food for shots program), provider incentives, provider recruitment, and network management. Some former Colorado Access clients will experience some loss of benefits, such as care coordination. In addition, some former Colorado Access providers will lose client management fees as well as clinical support services. Although Colorado Access plans to continue its CHP+ contract, concerns have been raised about provider retention for this much smaller network.

Colorado Access' decision to withdraw comes on the heels of several major policy and operational changes, including a new eligibility system (CBMS), reintroduction of passive enrollment, and new eligibility documentation requirements. Although the state has attempted to clarify policy through client and provider letters, many key informants feel that the quick succession of policy changes and perceived policy reversals have created confusion for clients and fostered an adversarial atmosphere between HCPF, managed care organizations, and local providers. Overall, Medicaid access indicators are expected to worsen, although costs may be reduced in the short run due to clients' inability to navigate the fee-for-service system. However, many key informants also noted that recent state interest in reengaging managed care will require rebuilding trust.

Capacity conclusions

Based on this largely qualitative assessment, what conclusions can we draw about provider capacity trends for children in Denver metro?

- Key informants estimate that safety net providers have sufficient capacity to serve approximately half of all uninsured children in Denver metro.
- Safety net providers play an important role in providing access to Medicaid and CHP+ children, providing a medical home to approximately one-third of publicly-insured children.
- A large proportion of privately practicing pediatricians and family practice physicians have decided to close their practices to new Medicaid clients.
- Colorado Access' decision to leave the Medicaid market exacerbated these existing capacity tensions, especially in the area of specialist access.
- Colorado Access' withdrawal also has meant a loss of a population-based perspective that has implications for building capacity and for quality of care.
- Inadequacies in Denver metro provider capacity to serve uninsured and publicly-insured children provide partial explanation for the access trends discussed in previous sections of the paper: poor performance on child access indicators, inappropriate use of the emergency department for primary care, and high rates of hospital admissions for ambulatory-sensitive conditions among uninsured and Medicaid children.

What are the major financing and reimbursement considerations that affect access?

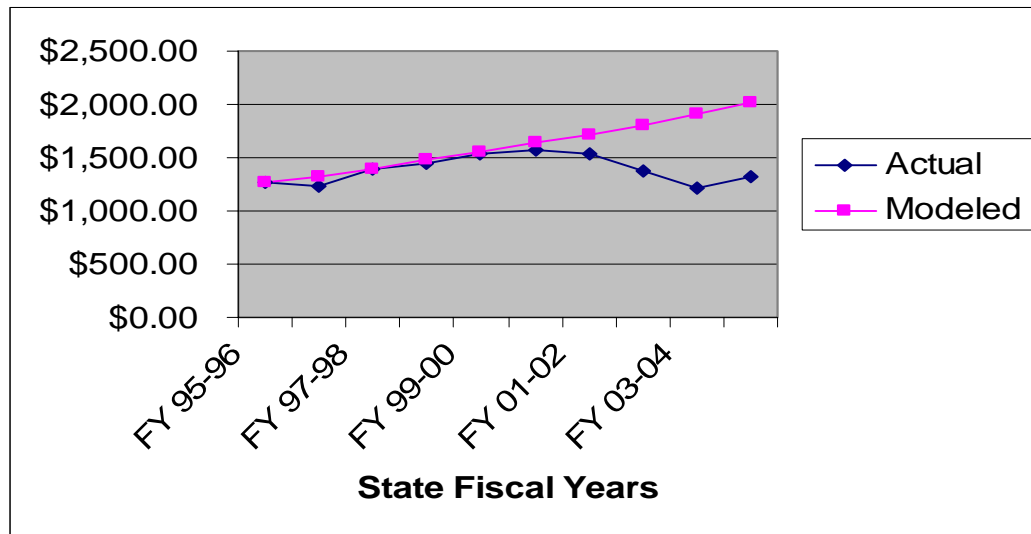
The state has traditionally used managed care organizations to assure adequate provider networks, facilitate access, manage utilization, and assure quality. Whether contracted to the state agency or to a managed care organization, participation of private providers and hospitals is necessary to ensure adequate access to primary care and specialty services. Furthermore, safety net providers play substantial roles in providing access to care for Medicaid and uninsured children (and adults). Complex and often contradictory financing mechanisms underlie this mixed public and private system, often creating unintended consequences. By way of example, this section will discuss Medicaid per capita costs as well as rate setting for managed care organizations and public and private primary care providers. These examples are meant to be illustrative of reimbursement dilemmas rather than exhaustive.

Medicaid child per capita costs decline as unassigned enrollment increases

Earlier sections of the paper correlated an increase in Medicaid child hospitalization rates to the dramatic increase in Medicaid children who are "unassigned" to a primary care provider or health plan. Increased rates of hospitalization are typically associated with increased costs. Counter-intuitively, however, Medicaid per capita costs for children have actually declined in current (not adjusted for inflation) dollars since 2000. Per capita expenditures refer to the annual expenditure made to provide health services to a low-income child enrolled in Medicaid. Children who qualify for Medicaid by virtue of a disability are not included in these per capita costs.

Figure 12 shows that during 1995-2000, when managed care enrollment was increasing, Medicaid per capita costs increased at an average rate of 5.3 percent per year. After 2000, the state responded to a recession and to managed care plan lawsuits over rate setting by enrolling fewer children into managed care options. As a result, in FY 03-04, per capita costs for children were less than they were almost 10 years earlier in FY 95-96.

Figure 12: Medicaid Child Per Capita Costs, FY 1995-2004



Data Source: Department of Health Care Policy and Financing FY95-96 through FY03-04

Based on available data, these child per capita cost “savings” appear to be driven by low levels of preventive service use and possibly by provider rate cuts in the Medicaid fee-for-service programs (PCPP and unassigned). Recall that the vast majority (90 percent) of Medicaid unassigned children did not access a single primary care service in 2004. Although changes in the risk profile of Medicaid children cannot be ruled out, we judge that increases in child enrollment in Medicaid is an unlikely explanation for all of the observed decrease in child per capita costs.¹¹⁴

In sum, less reliance on managed care appears to have saved the state money, but it has come at the price of compromised access to care. However, the companion implication is that improvements to child health care access may require new investments. An analysis by Joint Budget Committee (JBC) staff drew similar conclusions:

*[Medicaid] clients in managed care typically receive more primary [care] services ... [However], all general Medicaid MCOs with the exception of Denver Health, have left the program because rates are not adequate. If the State is interested in keeping a MCO program, the State will have to address how to make sure rates are adequate and budget neutral to attract providers. At this time, staff is unsure if both can be achieved.*¹¹⁵

Primary care providers are paid different rates

While managed care rate setting has received considerable attention at the legislative level, provider-level reimbursement issues, such as the rate differentials that exist between different types of primary care providers, tend to operate below the radar. By design, “cost-based reimbursement” provided to FQHCs and rural health centers under Medicaid considers all organizational costs, including the some of the costs of caring for the uninsured. Thus, care for the uninsured is inextricably linked to the Medicaid program.¹¹⁶ Statewide, Colorado FQHCs receive one-third of their revenues from Medicaid and at least one FQHC estimates that its business model depends on a payer mix of 40 percent or more Medicaid. Policies that threaten to redirect

Medicaid patients away from FQHCs are viewed as potentially destabilizing. Disproportionate share hospital (DSH) payments and school-based Medicaid services raise similar issues.

On the other hand, safety net provider capacity is inadequate to meet the needs of all Medicaid and uninsured children in Denver metro (and statewide). Unlike FQHCs, private providers and hospitals do not receive cost-based reimbursement. Medicaid typically reimburses preventive medicine and “evaluation and management codes” at rates that are below costs, between 17 percent and 73 percent of Medicare rates in 2004-05, and contribute to poor provider participation in Medicaid.¹¹⁷ In response to concerns about access, HCPF increased the allowable reimbursement for certain evaluation and management codes, effective July 1, 2006.¹¹⁸ However, increasing private provider fee-for-service rates to create an incentive for greater private sector involvement in Medicaid has been controversial for the reasons outlined above. Thus, the payment differential between private and public providers results in adversarial relationships and represents another barrier to access.

Financing and reimbursement conclusions

An extensive discussion of financing, especially financing of new coverage programs, is beyond the scope of this assessment. However, even this brief foray into financing considerations has identified several issues that currently impede access and require action, irrespective of whether a coverage expansion is pursued.

- Medicaid has moved away from managed care models in recent years in response to lawsuits and to reduce costs.
- Medicaid per capita expenditures on children have actually declined in current dollars since 2000; “savings” driven by provider rate cuts and the large number of children who do not access preventive care.
- Current Medicaid reimbursement for primary care creates disparities and competition among certain safety net providers and other providers.
- Financing for the uninsured is inextricably linked to Medicaid funding, taking the form of cost-based reimbursement for federally qualified health centers and disproportionate share payments for public hospitals.
- Regular Medicaid rates are not set sufficiently high to attract sufficient private sector participation.
- Medicaid payment differentials need to be resolved without destabilizing the existing safety net provider or creating new access barriers.
- Improving access and quality for publicly insured children may require strategic new investments that consider the complexity of current financing and reimbursement mechanisms.

Quality of Health Care for Denver Metro Children

*The U.S. health care system does not provide consistent, high-quality medical care to all people. Americans should be able to count on receiving care that meets their needs and is based on scientific knowledge – yet there is strong evidence that this is frequently not the case.*¹¹⁹

– Crossing the Quality Chasm
Institute of Medicine 2001

Policymakers want assurances that additional investments in care for the uninsured and publicly insured children will be used appropriately and efficiently to cover as many children as possible without waste. Access to quality health care services has varied unacceptably for uninsured and publicly insured children in Denver metro and statewide. Poor performance on child health care access and quality measures is often blamed on a limited state budget. However, state budgetary constraints provide only a partial explanation; state policies that do not consistently reward quality and value are also implicated. For example, the Medicaid agency has adopted a continuous quality improvement program, but has continued to increase enrollment in the under-performing unassigned option. Models for providing better value exist. For instance, integrated delivery systems as well as certain Denver metro providers have implemented successful provider-level quality initiatives. However, a more widespread community commitment to quality improvement requires stronger incentives for providers and coordinated community planning.

To assess and to identify opportunities to improve the quality of care delivered to children, we considered the following questions. Again, our data sources included local and state data (where available), expert opinion, and published studies. Due to the paucity of data in some areas, greater reliance is made on state-level data and key informant insights.

- What are useful frameworks for understanding quality and quality improvement?
- How has the Medicaid agency approached quality improvement?
- To what extent are providers using strategies to improve quality, such as implementation of evidence-based medicine and adoption of health information technology?
- What efforts have Denver metro providers undertaken to redesign their provider practices?
- What are the remaining data needs to assess the quality of child health care services?

Our findings are organized accordingly.

Frameworks for understanding quality

The Institute of Medicine's (IOM) 2001 landmark study on the quality of U.S. health care system, *Crossing the Quality Chasm*, identified major shortcomings and system-wide deficits in quality of care. The IOM concluded that bringing evidence-based health care practices to every community in the United States would require a sweeping redesign of the health care system. To begin movement in this direction, the IOM articulated both goals and activities for system improvement.

First, the report named six dimensions of quality:

- safety
- effectiveness
- patient-centeredness
- timeliness
- efficiency
- equity.

These characteristics have been embraced as definitive by a wide range of health care organizations. However, our analysis has revealed that valid and reliable child measures are lacking for many of the six IOM-defined quality domains, particularly at the state and regional levels. Furthermore, as already noted, public programs collect and publicly report many more measures of health care quality for children than do commercial health plans. So, relatively more is known about access to and quality of care for publicly-insured children.

Despite these data limitations, we know enough about existing access and quality deficits in the areas of child preventive service use, immunization rates, and parent satisfaction to question whether purchasers and providers have implemented the necessary infrastructure to improve quality. First, a necessary but not sufficient condition to quality improvement is removing access barriers. In addition, the IOM has identified four priority strategies for providers and purchasers to put in place:

- applying evidence to the delivery of health care
- using information technology
- aligning payment policies with quality improvement
- preparing the workforce.

The remaining sections of the report examine how Denver metro purchasers, especially the state Medicaid agency, and providers have approached quality improvement. In particular, it assesses the extent to which these IOM priority strategies have been implemented and whether appropriate data are collected to monitor quality on a routine basis.

How has the Medicaid agency approached quality improvement?

Medicaid has a formal, written quality assessment and improvement strategy that is available on the State's Web site.¹²⁰ The plan references continuous quality improvement (CQI) principles in its stated commitment to the "continuous improvement in the health status of Medicaid members." CQI has been described as a process by which "efficiency [is] improved by including everyone involved, even the customer, to delineate and assess the process, collect data and elucidate a problem, develop and plan an improvement, make the change, and re-evaluate to see if it had the expected result."¹²¹

CQI principles adopted but not fully implemented

Because measurement is key to CQI, key informants credit the state Medicaid agency for collecting multiple measures on children's service use and outcomes and for tracking performance separately by health plan, including those who are unassigned to a health plan. Key informants are critical of the agency's lack of programmatic or policy response to consistently poor outcomes. For example, the state has actually increased enrollment in the under-performing unassigned enrollment option.

Explanations for this lack of follow-through are several, including lack of organizational alignment with quality objectives, budget constraints, and the limited scope of the quality improvement plan.

In a program as complex and “siloed” as Colorado Medicaid, CQI demands strong mechanisms for internal coordination and information sharing. By contrast, one key informant invoked the metaphor of the proverbial blind man touching an elephant to describe how program-relevant information can get trapped within the individual sections of the Medicaid agency. As a result, few staff persons have a comprehensive understanding of Medicaid “elephant” as a whole. Key informants believe that much more could be done with existing data, but it requires better organizational alignment with quality objectives. In particular, information on program performance needs to be shared across sections and divisions with an aim of “assessing” the program and “elucidating” any problem areas.

In Colorado, current resources limit the Medicaid agency to “one quality improvement intervention” annually, which greatly constrains potential and sustainability for improvement. In addition, the intervention is typically conceived of as department-administered activity (e.g., educational postcards to clients) and the population focus of the quality improvement effort (e.g., children, pregnant women, adults with disabilities) changes annually. To date, few of these interventions have focused on IOM priority areas for quality improvement such as provider incentives, use of information technology, or promoting evidence-based medicine. However, the managed care contract with Rocky Mountain HMO may be viewed as an exception and promising approach in that the state provides it enhanced rates if certain quality objectives are met.

Finally, from a legal point of view, the Medicaid quality plan’s scope is restricted to the managed care program and therefore does not include within its purview the under-performing unassigned enrollment option. The quality plan represents the state’s response to the federal 1997 Balanced Budget Act (BBA) provisions that mandate that states ensure delivery of quality health care by all Medicaid *managed care plans*. While the state agency has elected to extend to the unassigned program certain quality activities (e.g., collecting and reporting HEDIS measures), not all provisions of the quality plan apply. Many key informants appear to be unaware that the unassigned enrollment option operates under a different regulatory framework than does the managed care program.

Key choices

With the vast majority of Medicaid children currently enrolled in non-managed care options, the state faces a key choice. Is HCPF able to develop the expertise and infrastructure to contract directly with physicians and better monitor their quality performance? Or, will the state attempt to re-engage with managed care entities that are required to implement quality-related functions? A hybrid option also exists in which managed care enrollment is increased, but a strengthened fee-for-service program remains as an alternative. However, even with increased managed care enrollment, state-level quality oversight needs to better reward performance.

Improving Medicaid quality oversight

Key informants believe that Medicaid’s quality improvement function needs to be strengthened in three main areas: data analysis and “transparency,” effective intervention, and evaluation. They stressed that existing program data are not always analyzed with an eye toward program development and improvement. This is both an intra- and inter-agency problem. For example, in

addition to better data sharing internally, several called for improved coordination between Colorado Department of Public Health and Environment (CDPHE) and HCPF on measurement (and programmatic) issues. For example, CDPHE's Child Health Survey could augment information on access and quality for publicly-insured children. Similarly, vaccines for children (VFC) program data and immunization registry data could help the state interpret its lagging immunization rates and inform interventions to improve them. Alternatively, these data could be made more available or "transparent" to external researchers to assemble and synthesize to draw programmatic and policy conclusions.

Physician key informants, in particular, believe that the state Medicaid agency's approach to quality improvement lacks sufficient clinical and public health input. They cite the lack of incentives for use of clinical guidelines and evidence-based medicine as illustrative. As a corrective, several advocated for the establishment of a Medical Director and an external quality improvement committee that would facilitate substantive collaboration with providers and other community organizations to address identified problems. Although no one invoked the specific term, many of these key informants promote what academics call a "community-oriented primary care (COPC) model". COPC is conceptually related to CQI, but it more strongly articulates the role of the community in defining the problem and crafting the solution. For example, the Rhode Island Medicaid program coordinated its quality improvement efforts with local providers and community organizations and realized significant improvements in targeted indicators, such as repeat teen births. (See Text Box.) In addition to Rhode Island, two physician key informants cited North Carolina as a state in which a community approach to problem-solving around primary care has been successful.

Case Study: Rhode Island's Rite Care Continuous Quality Improvement Program

The Rhode Island Medicaid agency formed a multi-agency team including Medicaid, Department of Health, and Brown University to create a continuous program evaluation program for Rite Care. Results from the evaluation program are used to design new programs, improve existing programs, and provide evidence that programs are working well.

Strategies include:

- Routine data collection of key health indicators: adequate prenatal care, maternal smoking, inter-birth interval, infant mortality, etc.
- Monthly meetings to discuss trends
- State coalitions to work on solutions to identified problems (e.g., high teen pregnancy rates)
- Publicly reporting indicators over time

Outcomes:

- Reduced Medicaid teen repeat birth rates
- Indicator data are widely used by program staff, advocacy community and legislature

Keys to Success:

- Medicaid agency and university leadership
- Commitment to a long-term partnership
- Credible source(s) of analytical capacity

Funding Sources:

- Robert Wood Johnson Foundation
- Technical assistance from the Center for Health Care Strategies

Some key informants view the state Medicaid agency as currently the best-positioned to jumpstart a broader effort to implement a community-wide program of quality improvement. HCPF is well-poised because Medicaid disproportionately pays for adverse health conditions that affect children, such as high low-birth-weight rates, high teen fertility rates, and avoidable hospitalizations.^{122,123} As a health care purchaser, Medicaid controls the incentive structure that could be leveraged to encourage health plans and providers to improve quality of care. Provider-level quality improvement strategies that target these outcomes would likely improve the quality of care for Medicaid and non-Medicaid children alike. Finally, Medicaid collects data that allows performance to be tracked and monitored over time for evaluation purposes.

Medicaid CQI conclusions

In sum, interest in bolstering Medicaid's quality improvement orientation primarily is motivated by the goal of improving the health of low-income children who are at high risk of poor outcomes. Longer term, many wish to see a broader effort to implement a community-wide program of quality improvement, e.g., community-oriented primary care (COPC).

To fully implement CQI at the state Medicaid agency and to begin to move toward a community-oriented primary care model will require:

- Analysis of existing Medicaid data to assess the program and identify problem areas.
- Focus on child health outcomes for which performance can be tracked over time, current performance is low, Medicaid is a significant payer, and evidence-based strategies exist to improve outcomes.
- Collaboration with other agencies, providers, community organizations, and researchers.
- A community-oriented approach to intervention.
- Evaluation of interventions.

To what extent and how are providers using strategies to improve quality?

Crossing the Quality Chasm states that scientific knowledge about clinical care is not applied systematically or expeditiously to clinical practice. To improve the application of evidence to clinical care the IOM recommends the following activities: analysis and synthesis of medical evidence, delineation of specific practice guidelines, dissemination of guidelines to providers and patients, and development of measures for assessing quality of care.¹²⁴ In a later report, it identified 21 areas in which the gap between best medical practice and current practice is the widest, nine of which are relevant to children: care coordination, self-management, asthma, children with special health care needs, diabetes, immunization, major depression, medication management, and obesity.¹²⁵ Colorado key informants independently identified immunizations, care coordination/nurse home visitation, obesity interventions, and developmental services for children with special needs as especially important but often underutilized.

Health information technology (HIT) provides one mechanism to support the implementation of practice guidelines and other quality improvement functions. As the President-Elect of the Colorado Medical Society wrote in a recent CMS publication:

We know, even though we can't quite trust it yet, that evidence-based medicine and its associated integration with health information technology is an essential component of retooling our malfunctioning health care system.¹²⁶

In particular, HIT facilitates the measurement of child health outcomes to assess whether practice guidelines and other quality improvement activities are working. In the absence of measurement, national research indicates that provider practices tend to overestimate their performance on guideline-relevant outcomes such as immunization rates.¹²⁷

Despite evidence that HIT improves care, adoption of these technologies and other quality improvements has been slow without financial incentives to providers. The IOM Quality Chasm report recommends that purchasers align financial incentives with better outcomes and require the public reporting of outcomes to create accountability. The Medicare and Medicaid programs are considering the development of pay-for-performance programs that create incentives for improving client outcomes.¹²⁸ Alternatively, purchasers can contract with integrated systems like Kaiser Permanente and Denver Health that already enjoy incentives to promote quality primary care.

Barriers must be overcome if practice guidelines are to be widely adopted

According to Colorado key informants, several barriers exist to the wider adoption of practice guidelines for children, including: closing gaps in the research on effectiveness, obtaining provider acceptance, implementing support systems, and providing adequate reimbursement. Although most physicians support an evidence-based approach to practice guideline development, lack of strong scientific evidence for the effectiveness of many child health care services means that practice guidelines often rely on expert opinion.^{129,130} For example, the American Academy of Pediatrics recommended schedule for pediatric preventive care is largely based on expert opinion. To address this gap, the Colorado Clinical Guidelines Collaborative (CCGC) has been working with health plans, physicians, hospitals, employers, government and quality assurance organizations to develop and disseminate evidence-based, best practice guidelines since 1996. Guidelines have been developed or are being developed for 11 conditions, including several that are relevant for children and/or address the IOM priority areas: evaluation and treatment of asthma, appropriate use of antibiotics for upper respiratory infection, childhood immunization, and obesity.¹³¹

Colorado key informants representing health plans, hospitals and physicians stressed the importance of provider acceptance of performance measures and the need to vet with physician groups any new performance measures used to improve quality of care for children. Concerns with performance measures tend to cluster around four themes: the measure is really about cost not quality, the measure is not evidence-based, the data collection and/or analytic methods are invalid or misleading, and the costs are prohibitive. With regard to the latter concern, many argue that conforming to clinical guidelines often introduces new costs (e.g., the time it takes to implement a validated screening tool). Similarly, tracking performance may require additional, unreimbursed time for documentation and use of expensive information technologies.

Thus, reimbursement could – but currently does not – provide incentives to move beyond these concerns. As one provider observed, “I don’t know any payor who cares if I give good quality care.” Another key informant stated it more bluntly, “Right now, it is a toxic payment system with no quality information.” Purchasers, especially Medicare, appear to be moving in the direction of realigned incentives. Many key informants think the state Medicaid agency could encourage evidence-based practice through developing practice standards and by reimbursing quality-related activities and necessary infrastructure, such as registries, outreach, and care coordination. Although wary of poorly implemented programs, physician key informants stated that physicians support pay-for-performance measures that are based on national standards, are transparent, use valid data, and assess outcome (not process) measures.

Electronic health record adoption rates are low but growing

Health information technology (HIT) provides the mechanism to support the implementation of clinical guidelines and other important quality improvement functions. The primary strategy for informing clinical practice through HIT is encouraging the adoption and use of electronic health records (EHRs), which have been defined as “a real-time patient health record with access to evidence-based decision support tools that can be used to aid clinicians in decision-making.”¹³² A systematic review of the research on health information technology concludes that HIT has been demonstrated to improve quality by: increasing adherence to clinical guidelines, especially for preventive care, enhancing capacity for disease surveillance, and reducing adverse drug events. The study further found some evidence that HIT can increase efficiency by reducing hospital stays, reducing nurses’ administration time, and creating more efficient drug utilization.¹³³

Misaligned incentives represent the most serious barrier to HIT implementation. That is, there is a disconnect under the commercial model between who pays for HIT (providers) and who benefits from HIT (insurers and purchasers). Although no Colorado data has been collected on the percentage of private physicians who have adopted EHRs, national estimates are 24 percent, with higher rates of adoption among larger practices as compared to small or solo practices.¹³⁴ This is consistent with our finding that in Denver metro, large practices are the most likely to have implemented EHRs. The Colorado Medicaid Society (CMS) is supporting a “migration path” that encourages physician practices to evolve their HIT systems beginning with administrative systems, then adding registries and e-prescribing, and then eventually implementing EHRs. The emphasis on administrative and billing functions responds to the current private sector reality that the main way for an EHR to “pay for itself” is through improved documentation and cost capture. Longer term, purchaser demand for practice-level outcome measures that depend on interoperable EHR systems may create additional incentives for smaller physicians to adopt HIT functions.

Integrated health systems taking the lead at HIT adoption

In the Denver metro area, Kaiser Permanente and Denver Health have implemented system-wide electronic health records. Not coincidentally, both are integrated delivery systems for which financial advantages accrue when unnecessary hospitalizations are averted through more appropriate management at the primary care level. More importantly, children benefit when EHRs facilitate the provision of quality preventive care services and appropriate disease management. Both Kaiser and Denver Health have reported HEDIS measures for Medicaid children that approach, or even surpass, commercial rates.

Given low Medicaid reimbursement rates for hospitals, hospitals have a financial incentive to partner and share data with primary care providers that serve large numbers of Medicaid clients. For example, safety net providers that collaborate with each other and with hospitals potentially can reduce unnecessary hospital and emergency room use by Medicaid clients. Many of these safety net providers also embrace a population-based perspective that is congruent with evidence-based medicine and the information technologies that have been designed to support it. This potential alignment of incentives already has been realized in several Colorado communities. For example, Clinica Campesina is collaborating on a shared EHR with its local hospital and with plans to be paperless. It will be interesting to see whether these looser networks of providers can provide the same return on quality that the integrated delivery systems have accomplished. The Colorado Health Foundation has announced its intention to provide technical support and planning grants to support safety net provider HIT adoption efforts.

Interconnectivity is limited

National studies and Colorado key informants indicate that while provider-based HIT implementation is growing, ability to share information between provider systems is poor. Physician key informants emphasized the importance of connectivity to improving quality of care because communications across providers can increase continuity of care, especially for low-income children who tend to be more transient, face more instability in coverage, and access care in a more fragmented fashion. Indeed, some key informants asserted that if individual physicians are going to be able to compete with integrated systems on performance measurement, they will need interoperable EHR systems that can connect them with other provider systems. Colorado key informants prioritized two types of Colorado networks that should be built and funded: a fully operational immunization registry and a regional health information organization.

Both types of networks are underway. The development of the Colorado Immunization Information System (CIIS) is spearheaded by the University of Colorado Health Sciences Center.¹³⁵ The Colorado Regional Health Information Organization (CORHIO) project builds on the work of an earlier AHRQ-funded partnership between Denver Health, Kaiser Permanente, The Children's Hospital, University Hospital, and University of Colorado Health Sciences Center to implement state-wide information and communication technologies that will allow clinicians at the point of care to access patient information from other clinical data repositories.¹³⁶ The CORHIO would take on the responsibility of the transmission of health information between providers.

Evidence-based medicine and HIT conclusions

In sum, evidence-based guidelines have largely been embraced by physicians nationally and in Colorado, at least in theory. The national literature and Colorado key informants agree that four elements of children's health care should be – but often are not – delivered in an evidence-based manner: case management, immunization, obesity prevention, and child development services. Failure to reward quality is the most often cited explanation. Whereas many Denver metro providers have taken a wait-and-see approach to quality improvement, large integrated systems like Kaiser Permanente and Denver Health have viewed the current cost-benefit equation favorably and implemented system-wide practice guidelines supported by EHR systems. These efforts have resulted in child health quality indicators that meet or exceed benchmarks.

However, according to Colorado key informants, wider adoption of HIT and of practice guidelines for children will require:

- Strengthening the evidence-base for the effectiveness of children's health services.
- Obtaining provider acceptance and trust of performance measures and practice guidelines.
- Creating incentives for the adoption of HIT and other systems to support quality improvement efforts, such as those that measure compliance with guidelines and track child outcomes.
- Reimbursing and/or otherwise aligning incentives for quality improvement, including HIT adoption.
- Addressing concerns about lack of expertise and disruptive effects on practices in implementing quality improvement strategies, especially HIT.

What efforts have Denver metro providers undertaken to redesign their provider practices?

This section of our report describes major activities by Denver metro area providers to redesign their provider practices to incorporate some of the concepts discussed thus far—applying evidence to practice, using information technology, and aligning payments with quality improvement – and using these tools to improve care outcomes. Redesign efforts typically employ multiple complementary strategies to improve quality including, for example, team approaches to health care delivery, expanded roles for mid-level providers, group visits, use of information technology, email and phone communication, open access scheduling, expanded hours of care, pre-visit questionnaires, and enhanced care coordination.¹³⁷ We found three major Denver area redesign efforts, including those at Denver Health, Clinica Campesina, and private practices participating in the Improving Performance In Practice program and the Colorado Children's Healthcare Access Program (CCHAP).

Integrated health systems again taking the lead at redesign

Nationally and locally, redesign efforts appear to be largely occurring at integrated health systems and large practices. Denver Health launched a hospital operations redesign program in 2004 called "Getting it Right: Perfecting the Patient Experience."¹³⁸ With a grant from the Agency for Health Care Research and Quality and Caring for Colorado, Denver Health's project seeks to improve effectiveness, efficiency, and safety of care with a variety of quality improvement tools. Redesign activities include conducting employee and patient focus groups, observing processes, and collecting data. Measures that are tracked under the project include average length of stay, medication errors, re-admission rates, employee turnover rates, and patient satisfaction.¹³⁹

FQHC disease collaboratives

Key informants generally agreed that FQHCs were much more likely to have undertaken redesign activities than private practices, but they disagreed about why this was the case. Health Disparities Collaboratives were developed by HRSA and the Institute for Healthcare Improvement and aim to improve the health care provided to all FQHC clients and to reduce health disparities.¹⁴⁰ Clinics that participate in the collaboratives receive tools and strategies for improving the targeted health outcome, report process and outcome measures for their patients, and compare outcomes to recommended care guidelines. FQHCs in the Denver metro area have or are currently participating in an asthma collaborative, an adolescent depression collaborative, Together for Tots program (immunization collaborative), and a diabetes collaborative.¹⁴¹ Spurred by its participation in the latter, Clinica Campesina became interested in using redesign techniques to improve outcomes.¹⁴² Clinica redesigned physical office space, scheduling, work flow, information systems, and implemented innovative quality improvement activities. Clinica credits its nationally recognized

redesign efforts to adequate resources received through their managed care contract with Colorado Access and to strong leadership from their medical director.

Private practice redesigns

In private practices, the Improving Performance in Practice (IPIP) program seeks to achieve three goals: integrate quality improvement and data collection methods into practices, increase efficiency and satisfaction for patients and the health care team, and incorporate population-based strategies for patient management.¹⁴³ Developed by the American Academy of Family Physicians and the American Academy of Pediatrics, the program is housed at the Colorado Clinical Guidelines Collaborative. The components of the Colorado IPIP program support: disease registries, work flow analysis, chronic care model, quality improvement principles, advance access scheduling, and EHR adoption. Initial IPIP outcomes measures will be 21 measures related to chronic care management of asthma and diabetes patients. Five of Colorado's major health plans have agreed to use one set of performance measures and share data across plans, which will reduce confusion in reporting and promote links between IPIP and pay-for-performance programs.

The Colorado Children's Healthcare Access Program (CCHAP) also focuses on private practices. CCHAP aims to improve the quality of care for children enrolled in the Medicaid program by increasing the number of participating pediatricians and family practice providers and thereby reduce the number of Medicaid and CHP+ children who remain unassigned to a primary care provider. Project goals are parallel to the population management orientation of the IPIP project. CCHAP includes both best practices in managed care, as well as practice redesign components. With regard to the latter, CCHAP providers have added a social worker to the health care team, streamlined referrals to mental health services, subscribed to the statewide immunization registry, implemented after-hours telephone care, participated in an asthma case management program, and received training in medical Spanish and cultural competency. The CCHAP evaluation team produces provider level outcomes on HEDIS-like measures, including immunization, emergency department use, and asthma care and results are compared to Medicaid FFS and other providers. Client and provider satisfaction are also assessed. Initially implemented in collaboration with Colorado Access, CCHAP is now seeking to partner with Rocky Mountain HMO to implement its planned statewide expansion.

Redesign conclusions

In the Denver metro area, integrated delivery systems have led the charge to implement practice redesigns. At the primary care level, examples of innovative quality improvement activities exist among both public and private providers. For example, since 1995, FQHCs have been participating in variety of disease collaboratives focused on diabetes, immunization, asthma, and adolescent depression. Quality improvement efforts among private practices, such as IPIP and CCHAP, are a more recent phenomenon. Unfortunately, however, silos defined by provider type have limited the opportunity to share data and best practices or engage in community planning efforts.

A more coordinated approach to addressing the identified access and quality deficits for Denver metro children will require:

- Mechanisms and incentives for interdisciplinary provider-level collaboration on child health quality issues

- Community-based data collection and/or sharing data and best practices among providers.
- Coordinated and community-based primary care planning.

Quality conclusions

While detailed state and local data are just emerging, we know enough about existing access and quality deficits for uninsured and publicly-insured children to chart a course of action. Inefficient use of services and poor quality have implications for the health of low-income children, the privately-insured (through cost-shifting), and the taxpayer. A community-wide, coordinated commitment to quality improvement is lacking. However, the state Medicaid agency is well-poised to jumpstart a collaborative effort to improve child health outcomes in Denver metro and statewide. The agency has already provided leadership by formally committing to continuous quality improvement (CQI) principles and by collecting and publicly reporting multiple measures of child access and quality. It needs to take the next step of reorganizing its programs to be responsive to the implications of these data, in particular, the uneven performance of its different enrollment options. Furthermore, it should seek to align incentives to reward high-performing health plans and to induce provider-level reforms, where quality “happens.” For the latter, the agency should leverage the small but growing number of Denver metro clinics and private practices that are using clinical guidelines, electronic health records, and redesigning their practices to improve quality of care. Finally, it can and should reach out to purchasers and the Colorado Business Group on Health to bring commercial data into regional planning processes to improve health outcomes for all children.

Recommendations

The following recommendations respond to the major barriers to access, provider capacity, parent education deficits, and quality identified in this report. The recommendations are presented in a consistent format in which the recommendation is presented in bold text, followed by bulleted action steps. In many cases, the recommendations do not require starting from scratch but rather build on local opportunities or pre-existing “building blocks.” These opportunities are briefly summarized. In so doing, passing references are made to local programs and projects that are complementary to the recommendation. For reasons of brevity, these programs are not detailed. Recommendations are followed by options for foundation roles and suggested next steps.

As a cautionary note, very little data is available for children with special health care needs in either the public or private sectors. What little data exists derives from small samples from state and national surveys. However, these data hint at low access to preventive care services, unmet needs, and high out-of-pocket costs. Additional analysis and/or data collection may be needed to probe these results and to assess whether these recommendations, such as the general finding of better access under managed care for publicly insured children, ring true for these special populations.

COVERAGE

Finding: The vast majority of the 114,000 Denver Metro children who are uninsured come from families that are unable to afford coverage. A program or policy that successfully covers all children under 300 percent of the federal poverty level would reduce Denver metro child uninsured rates from nearly 16 percent to under 3 percent. This policy or program must address the significant barriers to enrolling *all* eligible children in Medicaid or CHP+. In particular, it must recognize that while half of uninsured children are citizens and income-eligible for public programs, approximately half of their parents are non-citizens. Many non-citizen parents face unique barriers to enrolling their eligible children including: language barriers, lack of familiarity with public programs, confusing enrollment processes and, for undocumented parents, fear of detection. As a result, parents may be reluctant or unable to enroll their children and subsequently to obtain timely health care services.

Recommendations:

The following recommendations seek to enroll all currently eligible children into existing programs and eliminate all gaps in coverage for children under 300% of the federal poverty level. Other states have successfully addressed both objectives simultaneously. Research shows that any coverage expansion – including coverage expansions to other populations, such as parents – results in increased enrollment in existing programs, as well as the new program.

1. **Enroll all currently eligible children into existing programs.** The state and counties should simplify the policies and processes to enroll all eligible children in Medicaid/CHP+.

Action Steps:

- Adopt proven eligibility and renewal processes that maximize continuity of coverage such as self-declaration of income, continuous enrollment, and passive re-enrollment.

- Simplify the state application processes for public insurance programs.
- Expand the number of community-based enrollment sites.
- Train and collaborate with community-based organizations on the design and implementation of new application and enrollment strategies, including two-way communication and problem-solving capacity.
- Collect data and evaluate eligibility and enrollment processes to identify successful strategies, hurdles, and gaps.
- Use social marketing techniques to promote Medicaid and CHP+ to parents.

Opportunities to build upon

Several eligibility and enrollment resources are already in place, such as the community-based Colorado Benefits Management System (CBMS) sites and the existing Covering Kids' outreach and enrollment infrastructure. However, state leadership is required to leverage them effectively.

Specifically, the state should proactively address any on-going technical concerns with CBMS and greatly expand the number of community-based medical assistance (MA) sites. Providing training to state and community-based staff as well as improving communications will be critical to the success of this expansion. Focus on school-based CBMS sites would be particularly opportune because the Colorado legislature has authorized school-based pilot sites that link free-and-reduced school lunch eligibility to Medicaid/CHP+ eligibility. Research suggests that school-based enrollment can be particularly effective for targeting hard-to-reach populations. The Colorado Children's Campaign already has staff dedicated to this effort.

Finally, a substantial body of research exists on state policies and procedures that facilitate enrollment and improve retention, and this evidence can and should inform HCPF's eligibility and enrollment redesign. States have successfully implemented application simplification policies that improve enrollment rates without increasing fraud as well as designed renewal policies that improve continuity of coverage. HCPF should draw on these examples in designing their own policies.

2. **Eliminate all gaps in coverage for children under 300 percent of the federal poverty level.** The state should collaborate with stakeholders to create a new coverage program for uninsured children whose families cannot afford private insurance (e.g., under 300% of the federal poverty level) and who are ineligible for Medicaid and CHP+ due to income or citizenship.

Action Steps:

- Determine whether the coverage program should focus on children or families.
- Build community consensus on program design (e.g., eligibility, benefits, provider rates, subsidies for individual private, employer-based, or public coverage).
- Identify financing strategies (i.e., local, state, federal, individual, employer, foundation).
- Conduct an updated analysis of health insurance affordability to determine the upper limit on eligibility for the coverage program; national research suggests that this level is around 300% of the federal poverty level.
- Implement program.

Opportunities to build upon

In his acceptance speech, Governor-elect Bill Ritter vowed to “insure the uninsured.” Recent polling data by the American Academy of Pediatrics suggests there is broad public support among Coloradans for covering ALL children, irrespective of their immigration status. To eliminate all gaps in coverage for Colorado children who cannot afford private insurance requires focus on two discrete populations of uninsured children that are currently ineligible for Medicaid/CHP+: children who live in families with incomes between 200-300 percent of the federal poverty level and children who are non-citizens.¹⁴⁴ Almost all of the latter group is under 300 percent of the federal poverty level. Research and state experience have consistently found that a simple message “all kids covered” greatly facilitates marketing and ultimately, coverage rates. Similarly, providing family coverage to parents has been shown to increase child enrollment.

The financing sources for covering these “gap” populations likely will need to differ, because, for example, many non-citizens are not eligible for federal funding under Medicaid or CHP+. Financing decisions should draw on successful state and community initiatives that have improved coverage rates and health outcomes for “near poor” and immigrant children. Program design should build on existing programs to minimize fragmentation and inefficiencies. Many states have found that building on public programs maximizes streamlining, understanding, and acceptance while minimizing administrative expenses. However, the full spectrum of public and private program design options should be considered. HCPF’s proposed Colorado Family Care project (2005) generated useful research on benefits, provider rates, special populations, financing considerations, and other coverage design elements. It also defined a community consensus process that could be leveraged here.

Many key stakeholders are already mobilized around child coverage issues or health reform generally, among them the Colorado legislature, the Colorado Blue Ribbon Commission for Health Care Reform, and the Colorado Coalition for the Medically Underserved (CCMU). In addition, several other organizations are mobilized around health reform: the Colorado chapter of the American Academy of Pediatrics, the Colorado Medical Society, the Children’s Campaign, and the Colorado Forum. These disparate efforts need to be coordinated to maximize their effect.

QUALITY

Finding: Access to quality health care services has varied unacceptably for publicly-insured children in Colorado. Public program coverage expansions threaten to exacerbate existing access and quality deficits. Several Colorado health plans have consistently provided excellent access and quality outcomes to publicly-insured children. However, some of these plans no longer participate. Community support exists for creating incentives for successful, Colorado-based, nonprofit plans to enroll more Medicaid children. Other states have implemented continuous quality improvement programs at their state Medicaid agencies, collaborated with providers and other community partners, and reversed negative health trends.

Recommendations:

1. **Increase the use of high-performing managed care delivery systems.** State programs that provide health care coverage for children should use managed care delivery systems that have demonstrated good performance on health indicators for low-income children.

Action Steps:

- Implement best practices in managed care program development and contracting.
- Use managed care delivery systems that have demonstrated good performance on access and quality indicators for low-income children.
- Make managed care enrollment optional for children with special health care needs (i.e., those who qualify for Medicaid via Supplemental Security Income, foster care, or Home and Community Based Services waivers) and ensure viable alternatives for these vulnerable populations.
- Pay actuarially sound rates to ensure participation of plans and providers and incorporate pay-for-performance incentives.
- Ensure adequate financing for safety net providers.
- Implement efficient (e.g., automated) means for enrolling children into managed care that consider parental preferences and any existing relationships with providers.
- Consult with plans and providers to establish care performance standards at the system and provider levels.
- Require robust health plan performance measures, including measures for special populations such as child developmental screening rates, asthma care for children, and specialist access for children with special health care needs.

Opportunities to build upon

Colorado's mixed experience with Medicaid managed care mirrors the national research. However, several Colorado health plans have a consistently good history of providing excellent access and quality outcomes to low-income children on Medicaid and CHP+. Community support exists for HCPF to work with these successful Colorado-based plans. However, many local experts are wary of for-profit and out-of-state managed care organizations.

Several key informants indicated that the state will face challenges in reengaging managed care plans due to lack of trust. However, Rocky Mountain HMO and Denver Health have indicated that they would reconsider or expand their participation in Medicaid if the contracting climate improved. Kaiser Permanente participates in Medicaid in many other states, as a matter of corporate policy. The fact that nationally rated Medicaid health plans cluster in particular states suggests that state policy decisions affect the stability and success of managed care. The Centers for Health Care Strategies offers technical assistance to states on managed care contracting and related state purchasing issues. As a comparatively more stable managed care program, CHP+ also may have some lessons to offer the Medicaid program.

2. **Implement a continuous quality improvement program at the Colorado Department of Health Care Policy and Financing (HCPF).** The state should encourage collaboration among state agencies, providers, and consumers to fully implement a continuous quality improvement program for publicly insured children.

Action Steps:

- Reorganize the existing HCPF programs consistent with continuous quality improvement program principles.
- Engage state agencies, providers, and consumers in a collaborative process to identify key measures and to develop social and clinical intervention strategies.
- Identify strategies for collecting data on small populations, such as children with special health care needs.
- Collect and monitor data on enrollment, access, provider capacity, and quality trends.
- Develop programs and policies that respond to negative trends and evaluate results.
- Seek additional staffing and resources, as necessary.
- Contract with external evaluators to enhance analytical capacity and ensure community credibility.

Opportunities to build upon

HCPF already has a stated commitment to CQI principles and collects a rich set of measures that are useful for evaluating child health outcomes and parent satisfaction. While additional data on children with special needs would be desirable, a much more robust quality improvement program could be implemented within the confines of existing data. Furthermore, Colorado-based analytical capacity to “clarify what is known” exists through CDPHE, the Colorado Health Institute, and the USHCS Colorado Health Outcomes group. However, additional resources and/or staffing at HCPF may be necessary to effectively leverage these resources and opportunities.

Successful state examples exist, notably in Rhode Island, in which Medicaid agencies have implemented CQI programs and have documented improved outcomes. The Colorado provider community, especially pediatricians, is very interested in collaborating with the state on quality issues. Similarly, CCMU conducted a community prioritization process in 2006 that convened consumers, providers, state agencies and other stakeholders. This group rated “improved quality of public programs” as the number-one priority in terms of ease of implementation, the number of children affected, and estimated costs.

Because Colorado is required to balance its budget every year, programs that can document their value to legislators and constituents are less likely to be cut. This benefit would also accrue to a new coverage program.

3. **Create a stakeholder group focused on quality issues specific to health care for children.** Health care purchasers (e.g., employers, state government) and providers should collect data, share best practices, and engage in community planning to improve identified access and quality deficits for children.

Action Steps:

- Establish a stakeholder group focused on quality issues specific to health care for children.
- Identify shared interests or community priorities (e.g., developmental screening, case management, asthma) and develop coordinated responses.
- Collect purchaser and provider data on all children, including commercially insured children, to better understand local trends regarding access and quality.

- Share best practice information on local primary care redesign efforts and encourage replication.
- Implement Electronic Health Records in primary care practice settings to improve clinical care and to enhance the data available for community planning.
- Collaborate with HCPF to identify measures and data collection strategies to assist with local planning and the identification of policy barriers to improving health outcomes for children.
- Collaborate with the Colorado Business Group on Health to increase the number of pediatric quality measures available for privately insured children.
- Institute data practices to encourage collaboration, such as allowing providers to share information anonymously.

Opportunities to build upon

Denver metro offers many examples of provider-level quality innovations. A growing number of Denver metro physician practices and FQHCs are already participating in access and quality improvement initiatives, including FQHC disease collaboratives, CCHAP, and IPIP. Clinica Campesina has received national attention for their primary care redesign efforts. However, these initiatives tend to be restricted to a particular provider or provider type, thus limiting the cross-fertilization of ideas and ultimately their impact.

The Colorado foundation community has supported many of these access and quality initiatives and has a vested interest in replicating and institutionalizing their successes. Furthermore, recently announced funding initiatives continue to pursue provider-level quality improvement. For example, the Colorado Health Foundation plans to invest in planning grants to help safety net providers make greater use of health information technologies (HIT) to improve quality.

A regional primary care association could provide the mechanism necessary to disseminate clinical guidelines, coordinate data collection activities, share primary care design innovations, and facilitate the replication of successful quality improvement strategies. Successful models exist internationally. In particular, some U.S. primary care experts have promoted the U.K.'s model of regional primary care groups as a means to address fragmentation at the primary care level. The Colorado Health Institute's Monitoring the Safety Net Project has already had some success in obtaining agreements across provider types to report data in a similar format to facilitate regional planning.

PROVIDER CAPACITY

Finding: Private physician participation in public programs is a chronic problem that worsened during the recession due to rate freezes/cuts and state policy to reduce reliance on managed care. Safety net providers can and do augment the provider capacity of public programs. However, Colorado's high uninsured rates for adults and children, coupled with the growing Medicaid unassigned population, have taxed the Colorado safety net. Furthermore, safety net financing of the uninsured is inextricably linked to Medicaid and gives rise to competition and lack of collaboration between public and private providers.

Recommendation:

1. **Require the state to monitor and improve providers' ability to serve publicly insured and uninsured children.** State-level intervention is required to address the financing and reimbursement issues that impede improvements in provider capacity.

Action Steps:

- Obtain input from public and private providers on issues that impede improvements in provider capacity for uninsured and publicly insured children.
- Develop and implement a multi-year strategic plan for building provider capacity based on the size, geographic distribution, and needs of low-income populations.
- Develop a means to collect and analyze routine data to quantify capacity issues.
- Resolve financing barriers between public and private providers.
- Ensure adequate financing to safety net providers to care for the uninsured.

Opportunities to build upon

Interest exists among both public and private providers to expand provider capacity to serve low-income populations. For instance, many FQHCs and other safety net providers are willing to expand capacity but require time and predictable financing. Some need additional space to expand their clinical operations. Similarly, the CCHAP program has successfully piloted a model for increasing the number of privately practicing pediatricians that participate in Medicaid and CHP+, but its plans to implement a statewide replication are constrained by funding and identifying managed care partners. The Safety Net Monitoring project aims to collect qualitative and quantitative data that will describe where the health care needs of low-income populations are being met and where services are lacking due to inadequate capacity or other factors. This data could be leveraged to make strategic decisions about how and where to expand capacity. Additional data collection may be required.

It will be critical to recognize and resolve reimbursement disparities that give rise to perverse incentives. Raising provider rates to induce private sector involvement in Medicaid may be an efficient means to increase quickly needed capacity in suburban areas, because many practices are already present in these communities. However, FQHCs depend on revenue from Medicaid children to subsidize care of uninsured populations, including uninsured adults, and they worry about competing with private physicians for patients. A number of options exist to reduce these tensions, including expanding the child population eligible and enrolled in Medicaid and reducing the number of uninsured adults. (See Coverage recommendations.) States also have implemented other strategies, such as state subsidies of safety net providers. The commission should study a wide range of financing options and use this information to inform its strategic plan to increase capacity.

EDUCATION AND OUTREACH

Finding: Many parents are not aware of preventive care recommendations and lack "health literacy" skills necessary to optimize health services. Some require formal assistance simply to navigate the health care delivery system. An integrated program of client education, care coordination, and cultural competency training would address these issues.

Recommendation:

1. **Design and implement an integrated strategy of client education, care coordination, and cultural competency training.** Providers and community-based organizations should implement evidence-based and culturally appropriate programs that aim to improve parent knowledge and navigation skills.

Action Steps:

- Implement parent education campaigns that emphasize the importance of prevention.
- Implement targeted parent education programs to reach high-need populations, including recent immigrants and parents of children with chronic conditions.
- Implement cultural competency and language training programs for providers and staff.
- Create a single point of entry or otherwise coordinate existing case management and care coordination programs to help parents navigate the health delivery system.

Opportunities to build upon

Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions. As such, health literacy assumes that parents are aware of current recommendations for children's preventive services and actively seek to comply with them. To the extent that health literacy is not achieved, compensatory mechanisms such as effective and culturally competent case management and care coordination mechanisms are needed to help parents navigate.

As with provider-based quality initiatives, best practices in health literacy exist. For example, The Colorado Trust has funded health care organizations that are seeking to improve cultural competency. Denver Health has implemented health literacy programs for parents of children with chronic conditions. Representatives from the several publicly-funded case management and care coordination programs for children have met on and off over the years, seeking to dovetail their programs and services. However, these efforts may be too fragmented and diffuse to have system-wide impact. Mechanisms, such as a regional primary care association (See Access and Quality Recommendation #3), need to be identified to prioritize health literacy concerns and to implement coordinated, population-based strategies.

Options for Foundation Roles

After examining case studies of foundation-supported efforts to improve the access and quality of care in five states, some common roles emerge that foundations have played to promote these state and community-based efforts. They include:

- **Funding analytical work**
 - Funding analytical support to develop program design and financing options
 - Funding evaluation
- **Underwriting start-up costs**
 - Funding systems development
 - Funding premiums
- **Funding capacity-building efforts**
 - Funding safety net providers
 - Funding eligibility and enrollment functions
- **Building momentum**
 - Providing leadership
 - Funding analytical support to develop program design and financing options
 - Convening stakeholders and elected leaders and brokering compromise
 - Funding advocacy groups

Funding analytical work, start-up costs, and capacity building are traditional roles for private foundations that do not require elaboration here. In contrast, the Blue Cross Blue Shield Foundation in Massachusetts played an active role in building support for Massachusetts health reform and did not directly fund program activities. The foundation used a multi-pronged, multi-year strategy that made it a key player in the program development. Activities included: analysis on options for coverage, providing public forums for political leaders, engaging business leaders, and funding advocacy groups. The David and Lucile Packard Foundation in California provides another example of innovative funding practices by directly funding insurance premiums in Santa Clara with the aim of sustaining a successful coverage program long enough for it to obtain permanent funding.

The collective wisdom gleaned from project officers interviewed about these five case studies suggests the following keys to success and pitfalls to avoid.

Keys to success

- Create the program through dialogue.
- Have a good program to “sell.”
- Prioritize policy changes.
- Have a sustainability plan from the beginning.
- Ensure that funding is accompanied by leadership, knowledge, and technical assistance.
- Hire nationally recognized and credible, neutral entity to do analysis.
- Maintain political will from public, press, advocates, business leaders, and elected officials.

Pitfalls to avoid

- Do not work without state agency partnership.
- Do not pursue a single strategy, like outreach.
- Recognize that local initiatives have high failure rate; state approaches are preferred.

Issues and Next Steps

Because the recommendations spell out action steps and local resources, that discussion will not be reiterated here. However our research also identified a number of issues that were beyond the scope of this assessment but nonetheless warrant follow-up.

Program Design and Financing for the Proposed Coverage Expansion

This study left open the question of program design and financing to provide coverage to uninsured children under 300 percent of the federal poverty level. A recent Children's Campaign report (2006) proposes several alternatives for covering all children in Colorado as well as the associated costs. To the extent that public subsidies are required, there will likely be TABOR implications. The four foundations that funded this study of children's health access have commissioned a separate study of options for financing comprehensive health reform. That study will be available in the summer of 2007.

Additional policy analysis and technical assistance

Colorado's experience with Medicaid managed care has been characterized by a mixed performance on quality outcomes and plan withdrawals. The research literature documents similar instability in health plan participation and performance. NCQA issues an annual report of the top-rated Medicaid plans nationally, according to their performance on quality measures. Scanning this list, one observes that high-ranked plans cluster in certain states, suggesting that state-level policies can influence the stability and success of public managed care programs.¹⁴⁵ Funding for research and technical assistance to HCPF may be needed to identify strategies to create a stable Medicaid managed care program, identify and attract high performing health plans, monitor plan performance, and intervene effectively if plan performance is poor. JBC staff has recommended an outside consultant "to design the new framework for establishing an MCO program."¹⁴⁶ The Centers for Health Care Strategies provides technical assistance to states on managed care issues and may be a resource.

Additional data collection and analysis

Assessment of access and quality for certain key populations was constrained by the limited available data. For example, despite concerns about underinsurance, very little data exist to evaluate and monitor the performance of non-HMO commercial health insurance for children. The expertise of CBGH should be tapped about strategies for increasing the number of pediatric quality measures available for privately insured children.

Similarly, limited data is available to evaluate and monitor various models for delivering health care to children with special needs under Medicaid. Historically, CSHCN advocates have been wary of managed care models for CSHCN and many feel strongly that a fee-for-service option must continue as a viable option even if most children are enrolled in managed care. Additional data collection and analysis is warranted. It would be important to conduct such research in collaboration with CSHCN parents and advocates to develop a more nuanced understanding of delivery system models that enhance access and quality outcomes for this population.

Scope

The scope of this report focused on access and quality issues for children in Denver metro. However, several key informants questioned this narrow focus, noting for example, that coverage expansions are more successful when the entire family is insured. Furthermore, adverse child health outcomes (e.g., low birth weight) that result from inadequate prenatal care and other pregnancy-related risk factors can only be targeted in a program that covers parents. As suggested in coverage recommendation #2, a community consensus process should debate whether the focus of a new coverage expansion should be restricted to children or broadened to families.

Similarly, although the assessment often drew on statewide data, its primary orientation was toward Denver metro concerns. Therefore, we did not comprehensively address issues and concerns of the rest of Colorado, such as rural issues. To the extent that some of the recommendations require a state-level solution (e.g., Medicaid eligibility and enrollment policy changes), further research may be necessary to tailor the proposed solutions to other areas of the state. Replication of this study for other parts of the state may be useful.

Finally, this study focused primarily on physical health services, with a lesser emphasis on dental, mental health, and developmental service access and quality. In part, this reflects the limited data available for these services. However, additional data collection and analysis focused on these important services is recommended.

ENDNOTES

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- ¹ Spencer AC. Covering California's Kids: Multi-pronged Approach Yields Impressive Results. State Health Notes. 2006(June 26); Denver, CO: NCSL.
- ² California Assembly Approves Bill that Would Create State-Run Single Payer Health Care System. Kaiser Family Foundation Daily Reports. August 29, 2006. See, www.kff.org.
- ³ Illinois Governor Proposes Electronic Prescribing, Other Programs to Cut Down on Medical Errors. Kaiser Family Foundation Daily Reports. July 18, 2006. See, www.kff.org.
- ⁴ Louisiana Panel Endorses Plan to Create 'Medical Homes', Offer Subsidized Care in New Orleans. Kaiser Family Foundation Daily Reports. October 24, 2006. See, www.kff.org.
- ⁵ Minnesota Attorney General Calls for Gradual Move Toward Universal Health Care. Kaiser Family Foundation Daily Reports. August 11, 2006. Minnesota Attorney General Mike Hatch (D) is a gubernatorial candidate. See, www.kff.org.
- ⁶ Analysis of Alternative Approaches to Expanding Health Insurance Coverage in Mississippi. Final Report. Prepared for the Office of the Governor, Division of Medicaid. 2006(June 30); The Lewin Group.
- ⁷ Tennessee Announces Details of CoverKids, CoverRX Programs For Uninsured, Underinsured. . Kaiser Family Foundation Daily Reports. September 19, 2006. See, www.kff.org.
- ⁸ Details Released for Wisconsin Governor's Plan to Provide Health Insurance to More Children, Adults. . Kaiser Family Foundation Daily Reports. September 18, 2006. See, www.kff.org.
- ⁹ Maternal and Child Health (MCH) Update 2005: States Make Modest Expansions to Health Care Coverage. 2006(September 28); NGA Center for Best Practices.
- ¹⁰ U.S. Census Fact Finder. See, http://factfinder.census.gov/servlet/ACSSAFFacts?_event=Search&geo_id=&geoContext=&street=&county=&cityTown=&state=04000US08&zip=&lang=en&sse=on&pctxt=fph&pgsl=010
- Colorado's per capita income (in 2005 inflation-adjusted dollars) is \$27,081 vs. \$25,035 U.S. Similarly, Colorado's median household income (in 2005 inflation-adjusted dollars) is \$50,652 vs. \$46,242 U.S.
- ¹¹ Current Population Survey three-year average (2000-2006). In Denver metro, the proportion of children (ages 0-19) under 200 percent of FPL was 28.8 percent in (00-01); 30.6 percent in (02-03); and 33.3 percent in (04-05). Three-year averages show a similar trend 29.1 percent in (00-02) and 32.7 percent in (03-05). Although no statistical testing was conducted, the estimates are consistent with statistically significant national trends of rising child poverty rates.
- ¹² Nichols A. Understanding Recent Changes in Child Poverty. Series A, No. A-71. August 2006; Washington, DC: Urban Institute. Based on an analysis of the Current Population Survey over a ten year period, Nichols observes that "U.S. child poverty rates took two sharp turns: a major reduction from 1993-2000 followed by a slight hike from 2000 to 2004. Both shifts have been more dramatic for black and Hispanic children." He attributes the recent increases in child poverty rate to "the economic downturn beginning in 2000."
- ¹³ Barry M. Socioeconomic Trends in Metro Denver. Presentation to the Rose Community Foundation. April 19, 2006.
- ¹⁴ CDPHE Office of Maternal and Child Health. The Health Status of Colorado's Maternal and Child Health Population. Denver, CO: June 2005. p 3 According to the 2002 American Community Survey, 17 percent of Colorado children age 5 to 17 speak a language other than English, typically Spanish and 3-5 percent of Colorado households are "linguistically isolated". Linguistically isolated means that all members of the household 14 years and older have some difficulty with English.
- ¹⁵ The Denver metro area is defined according to the following logic: gtcbsa=19740 (Denver/Aurora) or 14500 (Boulder). It includes the following counties: Boulder, Arapahoe, Denver, Douglas, Jefferson. Also, it probably includes Adams, Broomfield and possibly Elbert counties.
- ¹⁶ Barry M. Socioeconomic Trends in Metro Denver. Presentation to the Rose Community Foundation. April 19, 2006. Barry observed that "In 2000, the under 18 population was concentrated on the fringe along the 470 Beltway, as well as in West Denver, North Denver, and East Denver/West Aurora along Colfax.
- ¹⁷ Current Population Survey three-year average (2004-2006) which corresponds to calendar years 03-05. The 3 year population average is 704,105.
- ¹⁸ Current Population Survey three-year average (2004-2006) which corresponds to calendar years 03-05. The 3 year population average is 111,912.
- ¹⁹ Current Population Survey three-year average (2004-2006) which corresponds to calendar years 03-05. The 3 year population average is 704,105.
- ²⁰ Colorado Childhood Immunization Rates: Policy and Practice. 2005(May); Denver, CO: Colorado Health Institute.
- ²¹ The Status of Mental Health Services in Colorado. 2003(October); Boulder,CO: TriWest Group. See,

<http://www.thecoloradotrust.org/repository/publications/pdfs/MHCC/MHCCfinalreport.pdf>

²² The Colorado Health Report Card. 2006; Denver, CO: The Colorado Health Foundation. Colorado ranks 44th among states for its prenatal care rate. The proportion of pregnant women who receive "inadequate" prenatal care (19 percent) is nearly twice the Healthy People 2010 target of 10 percent. Colorado ranks 40th among states for its low birth weight rate of 9 percent which is also nearly double the Healthy People 2010 target of 5 percent. In Colorado, 7 percent of adolescents (grades 9-12) attempted suicide, which greatly exceeds the Healthy People 2010 target of 1 percent.

²³ CDPHE Office of Maternal and Child Health. The Health Status of Colorado's Maternal and Child Health Population. Denver, CO: June 2005. p 28. Suicide rates "markedly higher" for Colorado children ages 10-14 4.1 per 100,000 vs. 1.3 per 100,000.

²⁴ Colorado Health Report Card. 2006; Denver, CO: The Colorado Health Foundation.

²⁵ <http://www.cdphe.state.co.us/cohid/>

²⁶ Youngblade LM et al. Health Care Use Patterns and Expenditures of Children with Special Health Care Needs (CSHCN): Using National and State Program-Level Data to Inform Decision about Identification, Financing, and Reimbursement. 2003(April); Gainesville, FL: University of Florida, Institute for Child Health Policy, National Center for Financing for CSHCN.

²⁷ Beers NH et al. Variations in State-Level Definitions: Children with Special Health Care Needs Public Health Reports. 2003;118(September-October):434-447.

²⁸ McPherson M, et al. A New Definition of Children with Special Health Care Needs. *Pediatrics*. 1998; 102(1Pt1):137-40. Children with special health care needs (CSHCN) are defined as "those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional conditions requiring health and related services of a type or amount beyond those required by children generally."

²⁹ CDPHE Office of Maternal and Child Health. The Health Status of Colorado's Maternal and Child Health Population. Denver, CO: June 2005. p 60.

³⁰ Care Without Coverage: Too Little, Too Late. 2002(May 21); Washington, DC: Institute of Medicine. "The main findings of the report are that working-age Americans without health insurance are more likely to receive too little medical care and receive it too late; be sicker and die sooner; and receive poor care when they are in the hospital, even for acute situations like a motor vehicle crash." See, <http://www.iom.edu/CMS/3809/4660/4333.aspx>

³¹ A Shared Destiny: Community Effects of Uninsurance. 2003(Mar 6); Washington, DC: Institute of Medicine. The report explores the "effects of community uninsurance on access to health care locally, and the potential spillover effects on a community's economy and the health of its citizens."

See, <http://www.iom.edu/CMS/3809/4660/5404.aspx>

³² Hidden Costs, Value Lost: Uninsurance in America. 2003(June); Washington, DC: Institute of Medicine. The report estimates that the "potential economic value to be gained in better health outcomes from uninterrupted coverage for all Americans" to be "between \$65 and \$130 billion each year." See, <http://www.iom.edu/CMS/3809/4660/12313.aspx>

³³ American Academy of Pediatrics. The Medical Home: Policy Statement. *Pediatrics*. 2002;110(1):184-186.

³⁴ Select Indicators for children ages 1-14 by region. Colorado Child Health Survey, 2004. Colorado Department of Public Health and Environment, Health Statistics Section. Denver Metro Region: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson.

³⁵ U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children's Health 2003. Rockville, Maryland: U.S. Department of Health and Human Services, 2005.

³⁶ Colorado Household Survey (CHS), 2001. Analysis provided at the authors' request by the Colorado Health Institute. The CHS data were supplied by the Office of Governor, State of Colorado which specifically disclaims responsibility for the analyses, interpretations, or conclusions contained herein.

³⁷ Achievements in Public Health, 1900-1999: Impact of Vaccines Universally Recommended for Children – United States. *MMWR*. 1999;48(12):243-248.

³⁸ Colorado Childhood Immunization Rates: Policy and Practice. 2005(May); Denver, CO: Colorado Health Institute.

³⁹ Todd J et al. Increased Rates of Morbidity, Mortality, and Charges for Hospitalized Children with Public or No Health Insurance as Compared with Children with Private Insurance in Colorado and the United States. *Pediatrics*. 2006(August);118(2):577-585.

⁴⁰ Keeping children out of hospitals: parents' and physicians' perspectives on how pediatric hospitalizations for ambulatory care-sensitive conditions can be avoided. *Pediatrics*. 2003(Nov);112(5):1021-30.

⁴¹ Bindman AB, Chattopadhyay A, Osmond DH, Huen W, Bacchetti P. The impact of Medicaid managed care on hospitalizations for ambulatory care sensitive conditions. *Health Serv Res*. 2005 Feb;40(1):19-38.

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- ⁴² Gadowski A, Jenkins P, Nichols M. Impact of a Medicaid primary care provider and preventive care on pediatric hospitalization. *Pediatrics*. 1998 Mar;101(3):E1.
- ⁴³ Todd J et al. Increased Rates of Morbidity, Mortality, and Charges for Hospitalized Children with Public or No Health Insurance as Compared with Children with Private Insurance in Colorado and the United States. *Pediatrics*. 2006(August);118(2):577-585. Authors of the study note that, "the fact that insurance-associated differences were identified for these conditions but not those unlikely to be altered by primary care (e.g., appendectomy, childhood cancer, trauma, and orthopedic disorders) in Colorado suggests that these results are not artifacts of our rate calculation methodology."⁴³
- ⁴⁴ Colorado Childhood Immunization Rates: Policy and Practice. 2005(May);Denver, CO: Colorado Health Institute.
- ⁴⁵ U. S. Department of Health and Human Services. Healthy People 2010 Leading Health Indicators ... Touch Everyone. See, http://www.healthypeople.gov/LHI/Touch_fact.htm
- ⁴⁶ HEDIS 2005 Health Plan Employer Data & Information Set. Evaluation of Quality of Care Delivered to Colorado Medicaid Clients in 2004. 2005;Denver, CO: State of Colorado Department of Health Care Policy and Financing. See, http://www.chcpf.state.co.us/HCPF/QIBELTH/NewQIP_mainPage.asp.
- ⁴⁷ Colorado Business Group on Health (CBGH). See, <http://www.coloradohealthonline.org>
The mission of CBGH is for local employers "to play an active and enthusiastic role in collaboration with health plans, providers, and purchasers to be a catalyst in promoting cost effective delivery of quality health care to the benefit of the community."
- ⁴⁸ Beck M. Medicaid Managed Care Update. Joint Budget Committee Memo. Denver, CO: September 20, 2006. In 2002, nearly half (48.9 percent) of all Medicaid clients were enrolled in managed care organizations (MCOs). At this time of high managed care enrollment, the FFS program (comprised of the PCPP and the unassigned) disproportionately enrolled people in rural areas. Subsequently, two major trends occurred. Medicaid enrollment of healthy women and children greatly increased due to the recession, and state Medicaid policy moved away from managed care strategies. By 2006, the Medicaid population was greatly increased, but just 17. percent were enrolled in managed care organizations, suggesting that the growing FFS enrollment has become less rural since 2002.
- ⁴⁹ Ibid. RMHMO stopped enrolling clients in the metro Denver area during this period.
- ⁵⁰ Colorado Childhood Immunization Rates: Policy and Practice. 2005(May);Denver, CO: Colorado Health Institute.
- ⁵¹ HEDIS 2006 Health Plan Employer Data & Information Set. Evaluation of Quality of Care Delivered to Colorado Medicaid Clients in 2005. 2006;Denver, CO: State of Colorado Department of Health Care Policy and Financing. (unpublished). Denver Health reported a 85.2 percent immunization rate for vaccine combination series 4:3:1:3:3:1:1.
- ⁵² To compare immunization trends over time, it is often necessary to use an older combination series such as the 4:3:1:3:3 series reported here. HEDIS stopped reporting the 4:3:1:3:3 series in calendar year 2005, in favor of two newer series: 4:3:1:3:3:1 and 4:3:1:3:3:1:1. Trending these new combination series over time is complicated by lack of data for the latter, and for the former, providers' slow compliance with the varicella (chicken pox) recommendation having a distorting effect on coverage rates.
- ⁵³ National CAHPS Benchmarking Database 2004. State of Colorado. Child Medicaid Sponsor Report. October 2004. Prepared by Westat and Shaller Consulting.
- ⁵⁴ HEDIS 2003 and 2004 Health Plan Employer Data & Information Set. Evaluation of Quality of Care Delivered to Colorado Medicaid Clients in 2002 and 2003. 2004;Denver, CO: State of Colorado Department of Health Care Policy and Financing. See, http://www.chcpf.state.co.us/HCPF/QIBELTH/NewQIP_mainPage.asp.
Observing that "Emergency Departments may sometimes be used to substitute for physician office/clinic encounters and may be reflective of a lack of a primary care provider or an unidentified barrier to access primary health care services", the state cited the following top ten diagnoses for Colorado FFS and PCPP clients presenting in the ED: otitis media, upper respiratory infection, pyrexia unknown, acute pharyngitis, abdominal pain, unspecified viral infection, headache, nutritional deficiencies due to pregnancy, urinary tract infection, gastroenteritis/colitis. (p 21).
- ⁵⁵ Colorado 2004-2005 Focused Study Evaluation of EPSDT Services. 2005(September); State of Colorado Department of Health Care Policy and Financing.
- ⁵⁶ National CAHPS Benchmarking Database 2004: State of Colorado Child Medicaid Sponsor Report. 2004(October);Westat and Shaller Consulting.
- ⁵⁷ Donovan KM. Children with Special Health Care Needs in Colorado, 2004. Denver, CO: August 2005. Donovan's analysis of the Colorado Child Health Survey (2004) found that 97 percent of parents of CSHNC reported that their children received "all needed care", as compared to 98 percent of parents of children without special needs.
- ⁵⁸ Watters K. Children and Youth with Special Health Care Needs Chapter: Unmet Need Among CSHCN by Severity of Condition, Colorado. State of Colorado Health Care Program for Children with Special Health Care Needs. See, <http://www.cdph.state.co.us/ps/mch/HealthMattersJFKSept2005.pdf>

Watters reports that parents of CSHCN report that their children have unmet needs, although levels vary by severity of the child's condition. Unmet needs for CSHCN include: prescription drugs (15 percent-37 percent); medical, mental health, educational services (14 percent-41 percent); emotional, developmental, behavioral problem (8 percent-40 percent); limited ability (6 percent-38 percent); special therapy (12 percent-38 percent).

⁵⁹ Glassman P. Health Literacy. National Network of Libraries of Medicine. See,

<http://nnlm.gov/outreach/consumer/hlthlit.html>

⁶⁰ Ibid.

⁶¹ U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children's Health 2003. Rockville, Maryland: U.S. Department of Health and Human Services, 2005.

⁶² HEDIS 2005 Health Plan Employer Data & Information Set. Evaluation of Quality of Care Delivered to Colorado Medicaid Clients in 2004. 2005; Denver, CO: State of Colorado Department of Health Care Policy and Financing. See, http://www.chcpf.state.co.us/HCPF/QIBELTH/NewQIP_mainPage.asp.

⁶³ Donovan KM. Children with Special Health Care Needs in Colorado, 2004. Denver, CO: August 2005.

⁶⁴ National CAHPS Benchmarking Database 2004: State of Colorado Child Medicaid Sponsor Report. 2004(October); Westat and Shaller Consulting.

⁶⁵ CDPHE Office of Maternal and Child Health. The Health Status of Colorado's Maternal and Child Health Population. Denver, CO: June 2005. p 68.

⁶⁶ Select Indicators for children ages 1-14 by region. Colorado Child Health Survey, 2004. Colorado Department of Public Health and Environment, Health Statistics Section. Denver Metro Region: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson.

⁶⁷ An unknown proportion of non-citizens are undocumented.

⁶⁸ Guedelman S et al. Unfriendly Shores: How Immigrant Children Fare in the U.S. Health System. Health Affairs. 2001(Jan/Feb):257-266.

⁶⁹ Colorado Household Survey (2001). Data produced by the Colorado Health Institute, at the request of the authors. In addition, Denver metro children with medical insurance are much more likely to have dental insurance as well (72.2 percent insured vs. 2.3 percent uninsured).

⁷⁰ Current Population Survey three-year average (2004-2006) which corresponds to calendar years 03-05. The 3 year estimate is that 72.9% of Denver metro children are covered by private insurance, which includes individual coverage and employer-sponsored coverage.

⁷¹ A higher proportion (62.7 percent) of Coloradans (all ages) receive health insurance through an employer, as compared to 59.8 percent nationally.

⁷² Robinson, J. Consolidation and the Transformation of Competition in Health Insurance. Health Affairs. 2004;23(6):.

⁷³ Health Insurance Premium Rates Increase Faster than Income. Kaiser Family Foundation Daily Reports. October 18, 2006. See, www.kff.org This analysis is based on data from Census Bureau, the Department of Labor and HHS.

⁷⁴ Johnson T and Schulte S. The Colorado Healthcare System and Policy Context. 2006; New York, NY: Commonwealth Fund.

⁷⁵ Colorado Household Survey (2001). Data produced by the Colorado Health Institute, at the request of the authors.

⁷⁶ CDPHE Office of Maternal and Child Health. The Health Status of Colorado's Maternal and Child Health Population. Denver, CO: June 2005. p 62-63.

⁷⁷ Ibid. Underinsured was defined as one of the following conditions: "delayed or did not receive needed care due to cost; family paid more over \$500 in out-of-pocket costs for medical, health related care in the past year and had financial problems due to the child's health condition; or family paid over \$500 in out-of-pocket costs and needed additional income to cover the child's medical expenses."

⁷⁸ L T Bilheimer and D C Colby. Expanding Coverage: Reflections on Recent Efforts. Health Affairs. 2001; 20(1):83-95.

⁷⁹ Paul M, Herring B. Expanding Coverage via Tax Credits: Trade-Offs and Outcomes. Health Affairs. 2001;20(1):9-26. Authors conclude that "we find that small [tax] credits will do little to reduce the number of uninsured but that credits covering about half of the premium for a benchmark policy might have a significant effect."

⁸⁰ Chollet D. The Role of Reinsurance in State Efforts to Expand Coverage. State Coverage Initiatives. 2004(October); V(4). Chollet concludes "In most states, it is unlikely that a reinsurance program could entirely solve the complex problem of making coverage accessible and affordable to everyone. However, by addressing several problems at once, a state-level reinsurance program can be an efficient strategy for stabilizing coverage and perhaps expanding it. Especially when subsidized, a reinsurance program can moderate the higher premiums that make coverage unaffordable for low-wage workers and discourage small employers from offering it."

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- ⁸¹ Long SH, Marquis MS. State Efforts to Insure the Uninsured: An Unfinished Story. RAND Research Highlights. 2006;RAND. <http://www.rand.org/publications/RB/RB4558-1/>
- ⁸² Dubay L. et al. More than Half of Uninsured Americans Cannot Afford Coverage and are Not Eligible for Public Programs. Health Affairs. (November 30)2006;26(1):w22. In 2004, 300 percent FPL corresponded to an income of \$57,921 for a family of four. Researchers calculate that at this income, families would have to devote 17.2 percent of their income to fully underwrite the costs of family coverage.
- ⁸³ Medicaid State Fact Sheets: Colorado & US. Kaiser Family Foundation. See, <http://www.kff.org/mfs/medicaid.jsp?r1=CO&r2=US&x=11&y=6>
- ⁸⁴ Ingargiola P and Yondorf B. Connecting Consumers Health Initiative. Part I. 2005;Denver, CO: Colorado Consumer Health Initiative. p. 10. For example, a successful grassroots campaign in 2004 raised the excise tax on cigarettes by 64 cents and the excise tax on other tobacco products from 20 percent to 40 percent. It earmarked the approximately \$175 million per year in new state revenues for a variety of health purposes. In 2005, the legislature specified that these tobacco tax funds would be used for a variety of purposes including, to fund tobacco education, prevention and cessation programs, restore certain Medicaid cuts, expand CHP+ coverage limits from 185 percent FPL to 200 percent FPL, expand Medicaid coverage for parents, remove waiting lists for HCBS waivers, and remove the Medicaid asset test.
- ⁸⁵ For example, although state legislation intends to exempt prenatal care and children from the new state immigration policy, CHP+ nonetheless imposed new documentation rules for pregnant women (because the CHP+ benefit package is broader than prenatal care) and its 18 year old beneficiaries (because children are defined as those under 18). Similarly, although the Deficit Reduction Act is only supposed to apply to Medicaid, some counties are requiring documentation for CHP+ applicants due to the joint application.
- ⁸⁶ New Federal Requirements for New Hampshire Healthy Kids Program Reduces Applications by Half. Kaiser Family Foundation Daily Reports. December 12, 2006.
- ⁸⁷ The Deficit Reduction Act of 2005: Implications and Opportunities for State Coverage Efforts. Academy Health. June 7, 2006. See, <http://www.statecoverage.net/cyberseminar/0606/>
- ⁸⁸ Current Population Survey three-year average (2004-2006) which corresponds to calendar years 03-05. The 3 year population average is 111,912.
- ⁸⁹ Current Population Survey three-year average (2004-2006) which corresponds to calendar years 03-05. 14.3 percent of children under the age of 6 are uninsured in the Denver metro area. 16.7% percent of children ages 6-18 years are uninsured in the Denver metro area.
- ⁹⁰ Dubay L. et al. More than Half of Uninsured Americans Cannot Afford Coverage and are Not Eligible for Public Programs. Health Affairs. (November 30)2006;26(1):w22. In 2004, 300 percent FPL corresponded to an income of \$57,921 for a family of four. Researchers calculate that at this income, families would have to devote 17.2 percent of their income to fully underwrite the costs of family coverage.
- ⁹¹ Some legal immigrants are eligible for Medicaid. Health Care Policy and Financing Staff Manual Volume 8, Section 8.100.53 lists the immigrant groups who are eligible for Medicaid. However, non-qualified immigrants who are not in one of those groups, but who meet all of the other requirements for any category of Medicaid, are eligible for Medicaid for an emergency medical condition. For more information on emergency Medicaid for immigrants, See: <http://www.chcpf.state.co.us/HCPF/refmat/al010312.asp>
- ⁹² Oakes MC. Eligible but Uninsured: Challenges to Getting and Keeping MassHealth. 2006;Boston, MA: Massachusetts Medicaid Policy Institute.
- ⁹³ Kellenberg R. Personal Communication. 11/2007. Georgia allows applicants to self-declare income, and has found very low levels of fraud through random audits.
- ⁹⁴ S. Dorn and G. M. Kenney. Automatically Enrolling Eligible Children and Families into Medicaid and SCHIP: Opportunities, Obstacles, and Options for Federal Policymakers. The Commonwealth Fund. www.cmwf.org/publications/publications_show.htm?doc_id=376814
- ⁹⁵ Flores G et al. A randomized, controlled trial of the effectiveness of community-based case management in insuring uninsured Latino children. Pediatrics. 2005 Dec;116(6):1433-41.
- ⁹⁶ Horner DC et al. Building an On-Ramp to Children's Health Coverage: A Report on California's Express Lane Eligibility Program. Kaiser Commission on Medicaid and the Uninsured. www.kkf.org/medicaid/7173.cfm.
- ⁹⁷ Dick AW et al. Consequences of States' Policies for SCHIP Disenrollment. Health Care Financing Review. 2002(Spring);23(3):65-88.
- ⁹⁸ Redmond P. Medicaid and SCHIP Retention in Challenging Times: Strategies from Managed Care Organizations. Center on Budget and Policy Priorities. 2005;September(13): Washington, DC.
- ⁹⁹ Current Population Survey three-year average (2004-2006) which corresponds to calendar years 03-05.

¹⁰⁰ Current Population Survey three-year average (2004-2006) which corresponds to calendar years 03-05. Half (48%) of uninsured children in Denver metro, are already eligible for existing programs. Half (51%) of parents in these families are non-citizens as are 12% of children (typically older children are non-citizens and younger children are natives).

¹⁰¹ Leighton K et al. The Importance of Family-Based Insurance Expansions: New Research Findings about State Health Reforms. 2000(September 5); Washington DC: Center on Budget and Policy Priorities.

¹⁰² Gruber J and Simon KI. Crowd-out Ten Years Later: Have Recent Public Insurance Expansions Crowded Out Private Health Insurance. 2007(January); NBER Working Paper No. W12858. See, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=959133.

¹⁰³ Institute of Medicine. Health Insurance is a Family Matter. 2002(September); Washington, DC: National Academy Press.

¹⁰⁴ Ibid.

¹⁰⁵ Between 2000 and 2005, the uninsured population grew by 17 percent, whereas the growth in uninsured patients seen at Colorado FQHCs grew by 14 percent.

¹⁰⁶ America's Health Care Safety Net: Intact but Endangered: Report Brief. Institute of Medicine. See, <http://www.iom.edu/includes/dbfile.asp?id=4118>.

The Institute of Medicine (IOM) defines "core safety net providers" as having two distinguishing characteristics, either by legal mandate or explicitly adopted mission, they offer care to patients regardless of their ability to pay for those services; and a substantial share of their patient mix is comprised of uninsured, Medicaid and other vulnerable patients.

¹⁰⁷ See, www.cchn.org/health_centers. Services delivered by Denver Health account for approximately 24% of all uninsured patients and about 20% of all Medicaid patients served by Colorado FQHCs.

¹⁰⁸ Poole S, Todd J, Berman S. Survey of Denver Pediatricians. Sponsored by The Community Child Health Foundation. 2005; Denver, CO.

¹⁰⁹ Berman S et al. Factors that Influence the Willingness of Private Primary Care Pediatricians to Accept More Medicaid Patients. Pediatrics. 2002;110:239-248.

¹¹⁰ Cunningham P. Medicaid Patients Increasingly Concentrated Among Physicians. 2006(August); Center for Studying Health System Change.

¹¹¹ Cunningham P. "The Effects of Medicaid Reimbursement on Access to Care of Medicaid Enrollees: A Community Perspective." "U.S. Physician Charity Care Continues Decade-Long Decline" (no. 13)

¹¹² Beck M. Medicaid Managed Care Update. Joint Budget Committee Memo. Denver, CO: September 20, 2006.

¹¹³ See, <https://www.coaccess.com/public/index.jsp> Denver Health no longer participates in Colorado Access.

¹¹⁴ Ibid. Beck observes that the enrollment of healthier clientele (e.g., families and children newly-eligible due to the post 9/11 recession) has reduced *overall* Medicaid per capita costs because families and children are less costly to cover than other types of Medicaid enrollees such as the elderly and disabled. However, per capita child costs are, by definition, specific to the non-disabled child population. Increasing child enrollment would affect total costs but should not have a significant effect on per capita child costs, unless for example the age distribution changed.

¹¹⁵ Beck M. Medicaid Managed Care Update. Joint Budget Committee Memo. Denver, CO: September 20, 2006. p11.

¹¹⁶ Federal law is the driving force behind most cost-based reimbursement in the Medicaid program in Colorado, affecting the rates for hospitals, nursing facilities, and federally qualified health centers (FQHCs). Cost-based rates are based on the facility's or provider's cost of providing care, and not on the provider's charges for that care.

¹¹⁷ Tang S. Medicaid Reimbursement Survey, 2004/5: Colorado. 2006; American Academy of Pediatrics. AAP compared 2004/5 Medicaid payments for commonly used pediatric CPT codes and found that Colorado Medicaid paid between 17 percent-73 percent of Medicare rates for "preventive medicine services" and "office and other outpatient services."

¹¹⁸ Medical Assistance Program Bulletin. 2006(July); Denver, CO: State of Colorado Department of Health Care Policy and Financing. p 5.

¹¹⁹ Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. 2001(March): Washington, DC: National Academy Press.

¹²⁰ Quality Assessment and Improvement Strategy. August 2003; Denver, CO: Department of Health Care Policy and Financing. <http://www.chcpf.state.co.us/HCPF/QIBEH/2003%20QI%20Strategy%20FINAL%20081303.doc.pdf>

¹²¹ Working with Community. See, www.gwu.edu/~iscopes/LearningMods_COPE.htm

¹²² Neighborhood Facts Summary for Denver, 2005. The Piton Foundation.

www.piton.org 9.5% low birth weight rate in Denver County, 8.5% statewide, HP 2010 goal is 5.0 ... results from premature births, drives costs ...

-
- ¹²³ Neighborhood Facts Summary for Denver, 2005. The Piton Foundation.
www.piton.org teen (ages 15-17) fertility rate in Denver County is 66.5 per 1,000 teenagers, compared to the statewide rate of 29.8 and the HP 2010 goal of 43
- ¹²⁴ Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. 2001(March): Washington, DC: National Academy Press.
- ¹²⁵ Priority Areas for National Action: Transforming Health Care Quality. National Academy Press. 2003. Washington, DC: Institute of Medicine.
- ¹²⁶ Parry, L. The Dating Game between Evidence-Based Medicine and Health System Reform. Colorado Medicine. 2006;Denver, CO: The Colorado Medical Society.
- ¹²⁷ Watt, J, et al. "The Difference between Measured and Estimated Vaccination Coverage among Private Physicians in California." Paper presented at Ambulatory Pediatric Association in New Orleans, LA. May 1998.
- ¹²⁸ Institute of Medicine. Performance Measurement: Accelerating Improvement. Washington, DC. 2005(December);Washington, DC: National Academy Press.
- ¹²⁹ Eddy, D. "Evidence-Based Medicine: A Unified Approach." Health Affairs, 2006(January/February).
- ¹³⁰ Leatherman, S, McCarthy, Douglas. Quality of Health Care for Children and Adolescents: A Chartbook. 2004(April);New York, NY: The Commonwealth Fund.
- ¹³¹ The Colorado Trust. Colorado Clinical Guidelines Collaborative: Initiative Overview. See, www.coloradotrust.org.
- ¹³² Brailer, D. The Decade of Health Information Technology: Delivering Consumer-Centric and Information-Rich Health Care. Office of the National Coordinator for Health Information Technology. www.hhs.gov/healthit/
- ¹³³ Chaudhry B et al. Systematic Review: Impact of Health Information Technology on Quality, Efficiency, and Costs of Medical Care. Annals of Internal Medicine. 2006;144:742-752. Twenty-four percent of all studies came from the following 4 "benchmark" research institutions that have home-grown, rather than commercially obtained HIT systems: 1) the Regenstrief Institute, 2) Brigham and Women's Hospital/Partners Health Care, 3) The Department of Veterans Affairs, and 4) LDS Hospital/Intermountain Health Care. Chaudhry et al. conclude that, "for providers considering a commercially available system installed as a package, only a limited body of literature is available to inform decision making."
- ¹³⁴ Jha, Ashish et al. How Common Are Electronic Health Records in the United States? A Summary of the Evidence. Health Affairs, Web Exclusive 2006(October 11):w496-507.
- ¹³⁵ <http://www.immregistries.org/public.php/ImmRegs/regMain.php?MainButton=Details&id=7>
- ¹³⁶ eHealth Initiatives. Community Profiles: Colorado Health Information Exchange. See, <http://ccbh.ehealthinitiative.org/profiles/COHIE.msp>
- ¹³⁷ Leatherman, S, McCarthy, Douglas. Quality of Health Care for Children and Adolescents: A Chartbook. 2004(April);New York, NY: The Commonwealth Fund.
- ¹³⁸ Foubister, V. Putting Engineering to Work in Health Care. Quality Matters, 2005(Oct): The Commonwealth Fund. See, www.cmwf.org.
- ¹³⁹ Denver Health. A Toolkit for Redesign in Health Care. Agency for Health Care Research and Quality. September 2005. See, www.ahrq.gov/qual/toolkit/toolkit.pdf
- ¹⁴⁰ Health Disparities Collaborative. Health Disparities Collaborative Topics: Asthma. See, www.healthdisparities.net.
- ¹⁴¹ Colorado Childhood Immunization Rates: Policy and Practice. 2005(May);Denver, CO: Colorado Health Institute.
- ¹⁴² Institute for Healthcare Improvement. Profiles in Improvement: Carolyn Shepard of Clinica Campesina. See, www.ihl.org
- ¹⁴³ Colorado Clinical Guidelines Collaborative. Improving Performance in Practice: Overview. See, www.coloradoguidelines.org.
- ¹⁴⁴ Some non-citizens are eligible for Medicaid, but many are not. Health Care Policy and Financing Staff Manual Volume 8, Section 8.100.53 lists the immigrant groups who are eligible for Medicaid. However, non-qualified immigrants who are not in one of those groups, but who meet all of the other requirements for any category of Medicaid, are eligible for Medicaid for an emergency medical condition. For more information on emergency Medicaid for immigrants, See: <http://www.chcpf.state.co.us/HCPF/refmat/al010312.asp>
- ¹⁴⁵ NCQA ranks the top Medicaid plans annually, See, http://www.usnews.com/usnews/health/best-health-insurance/rank_medicaid_2006.htm
- ¹⁴⁶ Beck M. Medicaid Managed Care Update. Joint Budget Committee Memo. Denver, CO: September 20, 2006.

Appendix A: **Key Informant List**

Polly Anderson, Policy Director
Ross Brooks, Director, Health Center Operations Division
Colorado Community Health Network
August 24, 2006

Steve Berman, M.D.
Professor of Pediatrics and Director of the
Children's Research Outcomes Program
UCDHSC
September 28, 2006

Carrie Curtiss, Associate Director
Colorado Consumer Health Initiative
September 21, 2006

Lynn Dierker, R.N., Director of Community Initiatives
Colorado Health Institute
August 28, 2006

Barbara Allen Ford, M.P.A., M.A., Executive Director
Colorado Association of School-Based Health Centers
September 7, 2006

Lori Grubstein, M.P.H., M.S.W., M.P.A., Program Officer
Robert Wood Johnson Foundation

Marjie Harbrecht, M.D., Executive Director
Colorado Clinical Guidelines Collaborative
September 7, 2006

Jonathan Harner, Senior Consultant
Bailit Health Purchasing
August, 2006

Bill Heller, Division Director
Child Health Plan Plus (CHP+)
State of Colorado, Department of Health Care Policy and Financing
August 21, 2006

Nikki Highsmith, M.P.A., Senior Vice President
Center for Health Care Strategies, Inc.
October 23, 2006

Bebe Kleinman, M.N.M., Executive Director
Doctors Care
August 30, 2006

Donna Kusuda, R.N., Vice President
Quality Improvement and Patient Safety
HCA
September 8, 2006

Barbara Ladon, Principal
The Ladon Group, LLC
August, 2006

Pete Leibig, President/CEO
Clinica Campesina Family Health Services
September 1, 2006

William N. Lindsay, III, President, Benefit Group
Lockton Companies of Colorado, Inc.
August 29, 2006

Donna Lynne, Ph.D., M.P.A., President
Kaiser Foundation Health Plan of Colorado
September 22, 2006

Molly Markert, Executive Director
Colorado Coalition of the Medically Underserved (CCMU)
Aurora City Council Member, Ward 4
September 6, 2006

Donna Marshall, M.B.A., Executive Director
Colorado Business Group on Health
September 8, 2006

Rick May, M.D., President
Colorado Medical Society
September 1, 2006

Paul Melinkovich, M.D.
Director, School-Based Health Centers
Director, Denver Community Health Services
Denver Health & Hospitals
Professor of Pediatrics and Preventive Medicine, UCDHSC
August 30, 2006

Wilson Pace, M.D., Professor
Green-Edelman Chair for Practice-Based Research
Department of Family Medicine
Director of AAFPNRN
UCDHSC

Vatsala Kapur Pathy, M.P.AFF, M.A., Program Officer
Colorado Health Foundation
September 1, 2006

Steve Poole, M.D.
Executive Director, Colorado Children's Healthcare Access Program (CCHAP)
Section Head, Community Pediatrics and Vice Chair, Department of Pediatrics, UCDHSC and
Children's Hospital
August 11, 2006

Barb Prehmus, Director
Medical Assistance Office
Laurel Karabatsos, M.A., Director
Health Benefits Division
State of Colorado, Department of Health Care Policy and Financing
September 15, 2006

Jessica Sanchez, M.S.N., R.N.
Health Disparities Collaborative Division Director
Colorado Community Health Network
August 31, 2006

Linda Schuurman-Baker, Program Officer
David and Lucile Packard Foundation
October 4, 2006

Chet Seward, M.A.
Director, Division of Health Care Policy
Colorado Medical Society
September 8, 2006

Alyson Shupe, Ph.D., M.S.W., Chief
Health Statistics Section
Colorado Department of Public Health and Environment
August 20, 2006

Kitty Stevens, M.S.N., R.N.
Director, Primary Care Office
State of Colorado, Department of Public Health and Environment
August 23, 2006

Marshall Thomas, M.D.
Medical Director
Colorado Access

James Todd, M.D.
Medical Director, Department of Epidemiology
The Children's Hospital
September 28, 2006

Nancy Turnbull, President
Blue Cross Blue Shield of Massachusetts Foundation
October 4, 2006

Wendy Wolf, M.D., President and CEO
Maine Health Access Foundation
October 17, 2006

Appendix B:
Children with Special Health Care Needs

CSHCN Indicator	Population(s)	Estimates
Children with special health care needs (based on a 5 item screening tool that operationalizes the federal Maternal and Child Health (MCH) Bureau definition of CSHCN). ^{i,ii}	Colorado children Ages (0-18)	12%
Children who have a current health condition described as <u>moderate or severe</u> . ⁱⁱⁱ	Colorado children	6.7%
Parent concerns about development/behavior. ^{iv}	Denver Metro children Ages (12-71 mos.)	10.3%
Children who have difficulties with emotions, concentration, behavior, or getting along with others. ^v	Denver Metro children Ages (1-14)	25.7%
Children with <u>moderate or severe</u> difficulties in the area of emotions, concentration, behavior, or getting along with others. ^{vi}	Colorado children Ages (3-17)	7.2%
Children with Asthma. ^{vii}	Denver Metro children Ages (1-14)	12.5 %
Children who are overweight (BMI> 95 th percentile). ^{viii}	Denver metro children Ages (2-14)	11.3 %

Appendix C:
Access to Care Indicators for Colorado Children

Access Indicator	Population(s)	Estimates
Medical Home Indicators		
Children with a preventive medical visit in the past year. ^{ix}	Colorado children	77.4% Colorado vs. 77.8% US
Children with a preventive medical visit and a preventive dental visit in the past year. ^x	Colorado children	57.7% Colorado vs. 58.8% US
Children who have a personal doctor or health provider. ^{xi}	Denver Metro children Ages (1-14)	83.8%
Children who a personal doctor or nurse and receive care that is accessible, comprehensive, culturally sensitive, and coordinated. ^{xii}	Colorado children	45.8% Colorado vs. 46.1% US
Children with chronic emotional, developmental, or behavioral problems who received mental health care in the past year. ^{xiii}	Colorado children	56.9% Colorado vs. 58.7% US
Confidence/Satisfaction with Health Care		
Children received all needed dental care. ^{xiv}	CO/Denver Metro children Ages (1-14)	91.5% Colorado vs. 91.9% Denver Metro
Children received all needed care. ^{xv}	Colorado children Ages (1-14)	98% Colorado

Appendix D:
Access and Quality of Care Indicators for Denver Metro Children:
Insured vs. Uninsured

Access Indicator	Population(s)	Estimates
Medical Home Indicators		
Children who did not receive any medical care. ^{xvi}	Colorado children Ages (0-17)	11.5% insured vs. 27.9% uninsured
Children with a regular source of care. ^{xvii}	Denver metro children Ages (0-18)	96.8% insured vs. 51.6% uninsured
Children with a regular source of care that use a clinic for their care. ^{xviii}	Denver metro children Ages (0-18)	12.2% insured vs. 52.5% uninsured
Children with a regular source of care that use a doctor's office for their care. ^{xix}	Denver metro children Ages (0-18)	83.0% insured vs. 39.2% uninsured
Children with a regular source of care that use ER/Urgent care center for their care. ^{xx}	Denver metro children Ages (0-18)	4.6% insured vs. 7.2% uninsured
Children with a regular source of care that see a regular person. ^{xxi}	Denver metro children Ages (0-18)	88.3% insured vs. 56.4% uninsured
Health Outcomes		
Children hospitalized for chronic illness (1995-2003). ^{xxii}	Colorado children (>28 days-18 years)	1.76 rate ratio (Medicaid or none) vs. private insurance
Children hospitalized for asthma (1995-2003). ^{xxiii}	Colorado children (>28 days-18 years)	1.64 rate ratio (Medicaid or none) vs. private insurance
Children hospitalized for diabetes (1995-2003). ^{xxiv}	Colorado children (>28 days-18 years)	1.46 rate ratio (Medicaid or none) vs. private insurance
Children hospitalized for vaccine preventable disease (1995-2003). ^{xxv}	Colorado children (>28 days-18 years)	2.17 rate ratio (Medicaid or none) vs. private insurance
Children hospitalized for psychiatric disease (1995-2003). ^{xxvi}	Colorado children (>28 days-18 years)	1.76 rate ratio (Medicaid or none) vs. private insurance
Children hospitalized for ruptured appendix (1995-2003). ^{xxvii}	Colorado children (>28 days-18 years)	1.25 rate ratio (Medicaid or none) vs. private insurance
Total hospitalization admissions for children (1995-2003). ^{xxviii}	Colorado children (>28 days-18 years)	1.69 rate ratio (Medicaid or none) vs. private insurance

Appendix E:
Access to Care (HEDIS Measures) for Colorado Medicaid^{xxix} and CHP+^{xxx} Children

Access and Quality Indicators	Medicaid Plans 2004 and (2005)	CHP+ Plans (2005)
Medical Home Indicators		
Zero well child visits in the first 15 months of life.	0.6% (1.2%) RMHMO 2.8% (3.9%) CO Access 32.4% (31.6%) PCPP N/A (N/A) DHMP 70.1% (26.8%) FFS	(N/A) RMHP 6.6% CO Access (N/A) Kaiser (N/A) DHMP 19.6% CHP+ MCN
Six or more well child visits in the first 15 months of life.	40.1% (33.7%) RMHMO 39.4% (43.6%) CO Access 34.8% (32.0%) PCPP N/A (N/A) DHMP 9.2% (33.3%) FFS	(N/A) RMHP 48.7% CO Access (N/A) Kaiser (N/A) DHMP 14.6% CHP+ MCN
Children's Access to Primary Care Providers 12-24 mos. (1 or more visits in the past year)	99.1% (98.1%) RMHMO 91.3% (91.6%) CO Access 26.2% (36.0%) PCPP N/A (99.0%) DHMP 14.8% (55.1%) FFS	93.3% RMHP 87.3% CO Access 100.0% Kaiser (N/A) DHMP 65.8% CHP+ MCN
Children's Access to Primary Care Providers 25 mos.-6 years. (1 or more visits in the past year)	89.3% (89.6%) RMHMO 78.4% (78.1%) CO Access 19.8% (30.2%) PCPP N/A (79.9%) DHMP 9.6% (38.0%) FFS	89.0% RMHP 82.1% CO Access 86.4% Kaiser 80.8% DHMP 49.5% CHP+ MCN
Children's Access to Primary Care Providers 7-11 years. (1 or more visits in the past year)	92.9% (90.8%) RMHMO 82.4% (79.0%) CO Access 29.8% (33.0%) PCPP N/A (N/A) DHMP 10.7% (33.2%) FFS	92.4% RMHP 87.7% CO Access 94.1% Kaiser (N/A) DHMP 75.3% CHP+ MCN
Children's Access to Primary Care Providers 12-19 years. (1 or more visits in the past year)	N/A (90.3%) RMHMO N/A (79.3%) CO Access N/A (37.9%) PCPP N/A (N/A) DHMP N/A (34.5%) FFS	93.5% RMHP 87.8% CO Access 94.3% Kaiser (N/A)DHMP 76.9% CHP+ MCN
Adolescent well care visits.	35.9% (35.7%) RMHMO 34.4% (27.7%) CO Access 19.2% (23.1%) PCPP N/A (27.4%) DHMP 9.5% (20.9%) FFS	39.2% RMHP 42.1% CO Access 52.3% Kaiser 30.3% DHMP 15.6% CHP+ MCN
Children with at least one dental visit in past year. (Note: all Dental care is PCPP or FFS.)	54.7% (52.7%) PCPP 26.5% (40.3%) FFS	N/A

Data Note: When Medicaid and commercial immunization rates are compared in the text, Medicaid 2004 data is the most recent year of data used because trend analysis requires use of a consistent vaccine combination series. Medicaid HEDIS 2004 data also represent the most recently published data. However, authors have obtained unpublished Medicaid and CHP+ HEDIS data for 2005 which is also included here.

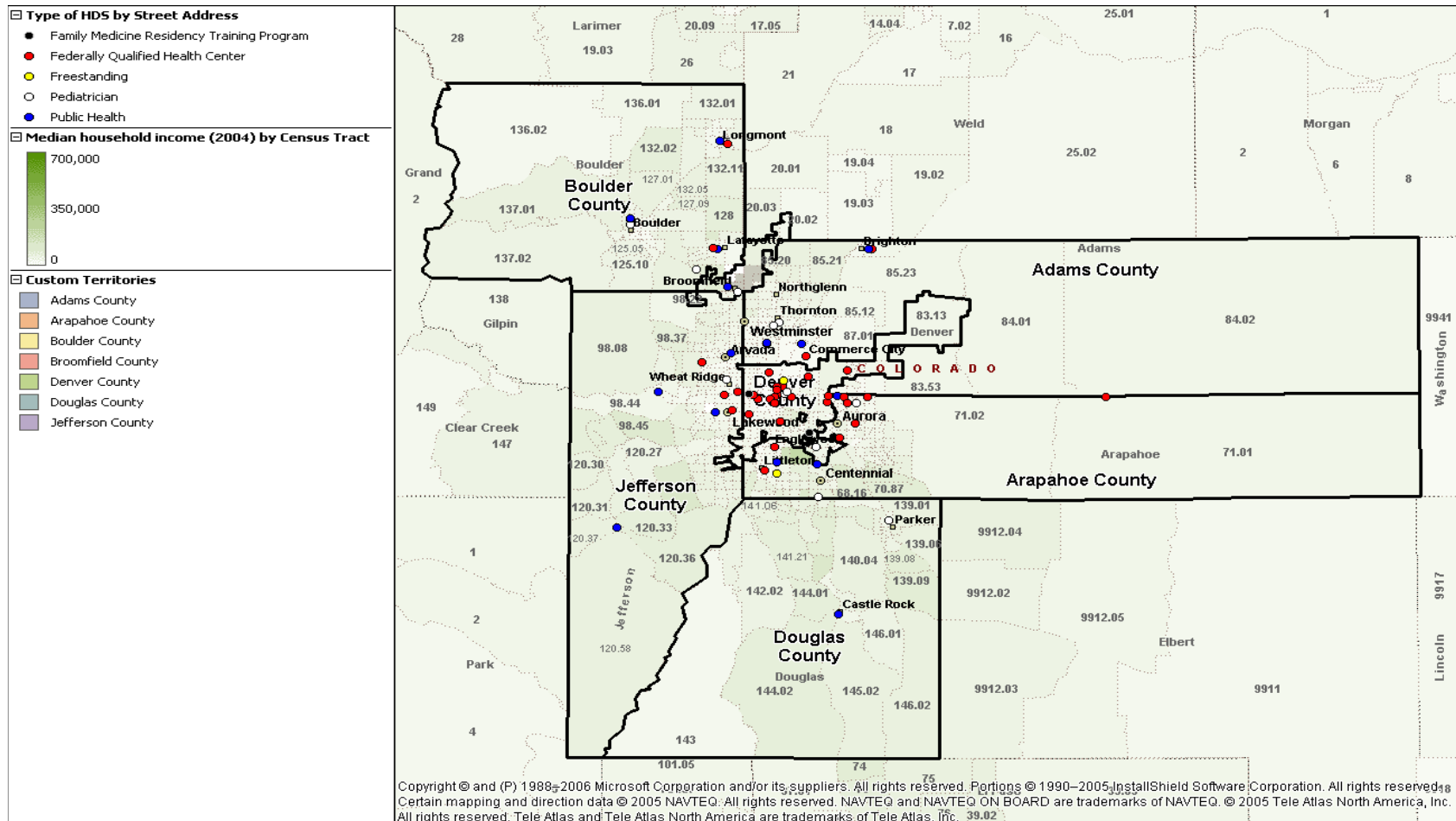
Appendix F:
Effectiveness of Care (HEDIS Measures) for Colorado Medicaid (2004) and CHP+ (2005)
Children

Access and Quality Indicators	Medicaid Plans (2004) ^{xxxi}	CHP+ Plans (2005) ^{xxxii}
Effectiveness of Care Indicators		
Adolescent immunization rates. (2003) ^{xxxiii}	36.5% PCPP 23.1% FFS	(N/A)
Emergency room visits per 1,000 member months.	45.3% RMHMO 56.8% CO Access 53.8% PCPP 39.3% FFS	(N/A)
Appropriate Treatment for Children with Upper Respiratory Infection	(N/A) RMHMO (N/A) CO Access 84.5% PCPP 87.7% FFS	90.8% RMHP 85.0% CO Access 89.0% Kaiser % DHMP % CHP+ MCN
Appropriate Testing for Children with Pharyngitis.	(N/A)	78.4% RMHP 68.4% CO Access 81.2% Kaiser 92.3% DHMP 63.5% CHP+ MCN
Appropriate Medications for People with Asthma (all ages).	(N/A)	(N/A) RMHP 92.0% CO Access (N/A) Kaiser (N/A) DHMP 63.9% CHP+ MCN

Data Note: The HEDIS data presented here are the most recently published data. When Medicaid vs. CHP+ comparative statements are made in the text, CHP+ 2004 data is used.

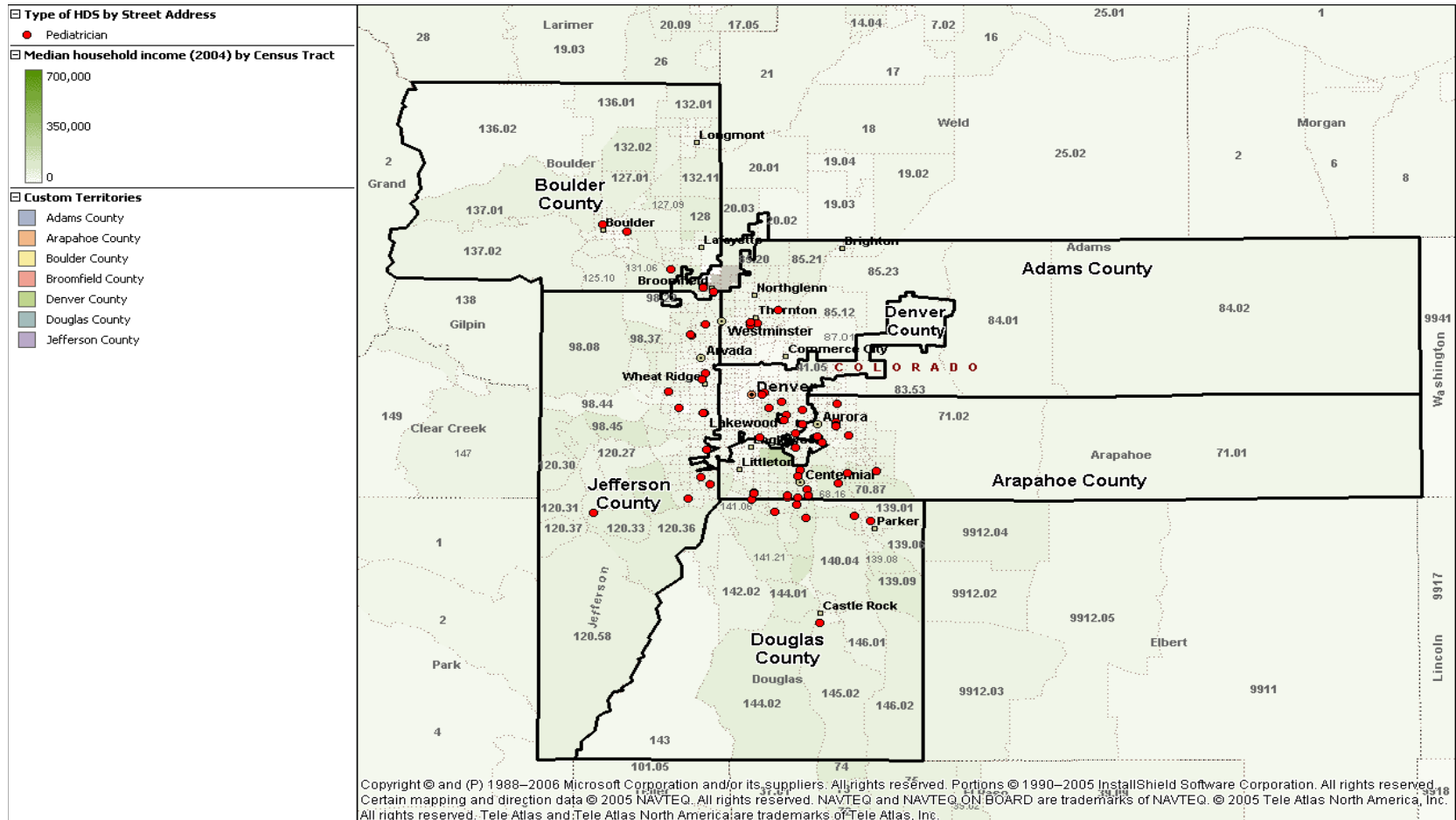
Appendix G

Denver Metro w/ All Medicaid Providers by Median Household Income Census Tracts (Small HDS Markers)



Appendix H

Denver Metro w/ All Pediatricians by Median Household Income Census Tracts (Small HDS Marker)



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- ⁱ Centers for Disease Control and Prevention, National Center for Health Statistics, State and Local Area Integrated Telephone Survey (SLAITS), National Survey of Children with Special Health Care Needs, 2001.
- ⁱⁱ CSHCN Screener. http://www.markle.org/resources/facct/doclibFiles/documentFile_446.pdf
- ⁱⁱⁱ U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children's Health 2003. Rockville, Maryland: U.S. Department of Health and Human Services, 2005.
- ^{iv} Select Indicators for children ages 1-14 by region. Colorado Child Health Survey, 2004. Colorado Department of Public Health and Environment, Health Statistics Section. Denver Metro Region: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson.
- ^v Select Indicators for children ages 1-14 by region. Colorado Child Health Survey, 2004. Colorado Department of Public Health and Environment, Health Statistics Section. Denver Metro Region: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson.
- ^{vi} U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children's Health 2003. Rockville, Maryland: U.S. Department of Health and Human Services, 2005.
- ^{vii} Select Indicators for children ages 1-14 by region. Colorado Child Health Survey, 2004. Colorado Department of Public Health and Environment, Health Statistics Section. Denver Metro Region: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson.
- ^{viii} Select Indicators for children ages 1-14 by region. Colorado Child Health Survey, 2004. Colorado Department of Public Health and Environment, Health Statistics Section. Denver Metro Region: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson.
- ^{ix} U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children's Health 2003. Rockville, Maryland: U.S. Department of Health and Human Services, 2005.
- ^x U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children's Health 2003. Rockville, Maryland: U.S. Department of Health and Human Services, 2005.
- ^{xi} Select Indicators for children ages 1-14 by region. Colorado Child Health Survey, 2004. Colorado Department of Public Health and Environment, Health Statistics Section. Denver Metro Region: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson.
- ^{xii} U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children's Health 2003. Rockville, Maryland: U.S. Department of Health and Human Services, 2005.
- ^{xiii} U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children's Health 2003. Rockville, Maryland: U.S. Department of Health and Human Services, 2005.
- ^{xiv} Select Indicators for children ages 1-14 by region. Colorado Child Health Survey, 2004. Colorado Department of Public Health and Environment, Health Statistics Section. Denver Metro Region: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson.
- ^{xv} Donovan KM. Children with Special Health Care Needs in Colorado, 2004. Denver, CO:August 2005.
- ^{xvi} State Health Access Data Assistance Center. The State of Kids' Coverage. August 2006
- ^{xvii} Colorado Household Survey (2001). Data produced by the Colorado Health Institute, at the request of the authors.
- ^{xviii} Colorado Household Survey (2001). Data produced by the Colorado Health Institute, at the request of the authors.
- ^{xix} Colorado Household Survey (2001). Data produced by the Colorado Health Institute, at the request of the authors.
- ^{xx} Colorado Household Survey (2001). Data produced by the Colorado Health Institute, at the request of the authors.
- ^{xxi} Colorado Household Survey (2001). Data produced by the Colorado Health Institute, at the request of the authors.
- ^{xxii} Todd J et al. Increased Rates of Morbidity, Mortality, and Charges for Hospitalized Children with Public or No Health Insurance as Compared with Children with Private Insurance in Colorado and the United States. *Pediatrics*. 2006(August);118(2):577-585.
- ^{xxiii} Todd J et al. Increased Rates of Morbidity, Mortality, and Charges for Hospitalized Children with Public or No Health Insurance as Compared with Children with Private Insurance in Colorado and the United States. *Pediatrics*. 2006(August);118(2):577-585.

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- ^{xxiv} Todd J et al. Increased Rates of Morbidity, Mortality, and Charges for Hospitalized Children with Public or No Health Insurance as Compared with Children with Private Insurance in Colorado and the United States. *Pediatrics*. 2006(August);118(2):577-585.
- ^{xxv} Todd J et al. Increased Rates of Morbidity, Mortality, and Charges for Hospitalized Children with Public or No Health Insurance as Compared with Children with Private Insurance in Colorado and the United States. *Pediatrics*. 2006(August);118(2):577-585.
- ^{xxvi} Todd J et al. Increased Rates of Morbidity, Mortality, and Charges for Hospitalized Children with Public or No Health Insurance as Compared with Children with Private Insurance in Colorado and the United States. *Pediatrics*. 2006(August);118(2):577-585.
- ^{xxvii} Todd J et al. Increased Rates of Morbidity, Mortality, and Charges for Hospitalized Children with Public or No Health Insurance as Compared with Children with Private Insurance in Colorado and the United States. *Pediatrics*. 2006(August);118(2):577-585.
- ^{xxviii} Todd J et al. Increased Rates of Morbidity, Mortality, and Charges for Hospitalized Children with Public or No Health Insurance as Compared with Children with Private Insurance in Colorado and the United States. *Pediatrics*. 2006(August);118(2):577-585.
- ^{xxix} Health Plan Employer Data & Information Set (HEDIS) Evaluation of Quality of Care Delivered to Colorado Medicaid Clients in 2004. 2005;Denver, CO: State of Colorado Department of Health Care Policy and Financing. p 9.
- ^{xxx} 2006 Health Plan Employer Data & Information Set (HEDIS) Aggregate Report for Child Health Plan Plus. 2006;Denver, CO: State of Colorado Department of Health Care Policy and Financing.
- ^{xxxi} Health Plan Employer Data & Information Set (HEDIS) Evaluation of Quality of Care Delivered to Colorado Medicaid Clients in 2004. 2005;Denver, CO: State of Colorado Department of Health Care Policy and Financing. p 9.
- ^{xxxii} 2006 Health Plan Employer Data & Information Set (HEDIS) Aggregate Report for Child Health Plan Plus. 2006;Denver, CO: State of Colorado Department of Health Care Policy and Financing.
- ^{xxxiii} Health Plan Employer Data & Information Set (HEDIS) Evaluation of Quality of Care Delivered to Colorado Medicaid Clients in 2004. 2005;Denver, CO: State of Colorado Department of Health Care Policy and Financing. p 6.